

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of

NORTHEAST NUCLEAR ENERGY  
COMPANY, et. al.

(Millstone Nuclear Power Station  
Unit 2)

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Docket No. 50-336

EXEMPTION

I.

The Northeast Nuclear Energy Company, et al. (the licensee) is the holder of Facility Operating License No. DPR-65, which authorizes operation of the Millstone Nuclear Power Station, Unit 2 at a steady-state power level not in excess of 2700 megawatts thermal. The facility is a pressurized water reactor located at the licensee's site in the town of Waterford, Connecticut. The license provides, among other things, that it is subject to all rules, regulations, and orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect.

II.

On November 18, 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 (45 FR 76602). 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. One of these 15 subsections, III.G, is the subject of this exemption request. Specifically, Subsection III.G.2.b provides that,

"...where cables or equipment, including associated non-safety circuits that could prevent operation or cause maloperation due to hot shorts, open circuits, or shorts to ground, of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:

b. Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area."

### III.

By letter dated February 29, 1988, the licensee requested exemption from the requirements of Section III.G.2.b of Appendix R, as these requirements apply to separation of 20-feet, free of intervening combustibles, with fire detection or suppression capabilities, for redundant Auxiliary Feedwater Isolation Valves 2-FW-43A and B. The acceptability of the exemption request is addressed below.

### IV.

The purpose of Section III.G.2 to Appendix R is to ensure that redundant components of safety system, required to achieve and maintain post-fire hot shutdown, are protected in such a way that at least one such component will

remain free of damage which could prevent the completion of the safety function. One such means of protecting these redundant safety components is provided for in Section III.G.2.b, that is, separate the components by at least 20-feet without intervening combustibles or fire hazards, with a fire detection and suppression capability.

One system for Millstone Unit 2 which is relied upon to achieve and maintain post-fire hot shutdown is the Auxiliary Feedwater System. Valves 2-FW-43A and B are redundant components which provide an isolation/control function. These valves are normally closed and at least one of the two valves is required to open to permit flow of auxiliary feedwater to a steam generator upon loss of normal feedwater. The valves are located on the 14' -07" elevation of the turbine building (Fire Area R-3). The valves and their control cables are separated by less than 20 feet with no fire barriers, fire detection, or fire suppression capability.

The licensee has performed an electrical control analysis of 2-FW-43A and B which indicates that no credible failure, or combination of failures would render both valves inoperable. The identified failure modes either cause the valves to open or render the valves closed but capable of being opened.

We have reviewed the analysis and concur with the conclusion that either 2-FW-43A or B (or both) will open or remain operable in the event of a fire. Accordingly, the protection of 2-FW-43A and B by separation of at least 20-feet, with no intervening combustibles or fire hazards, with a fire detection and suppression capability, is not required. The remaining means of protecting redundant components of safety systems required for achieving and maintaining post-fire hot shutdown, addressed in Subsection III.G.2 (e.g., fire barriers) for 2-FW-43A and B are similarly unnecessary.

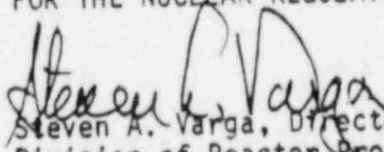
Based on the above evaluation, the staff considers the licensee's alternative fire protection configuration to be equivalent to that achieved by conformance with Appendix R to 10 CFR Part 50. Therefore, the licensee's request for exemption from Section III.G.2.b as these requirements relate to separation of valves 2-FW-43A and B by at least 20-feet, with no intervening combustibles or fire hazards, and with a fire detection and suppression capability, is granted.

Accordingly, the Commission has determined pursuant to 10 CFR 50.12(a), that (1) this exemption as described in Section IV 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, and (2) special circumstances are present for this exemption in that application of the regulation in this particular circumstance is not necessary to achieve the underlying purposes of Appendix R to 10 CFR Part 50. Specifically, the underlying purpose of Appendix R, Section III.G.2.b is to assure that a suitable complement of safe-shutdown equipment will be available, post-fire, to achieve and maintain hot shutdown of the reactor. The analysis of valves 2-FW-43A and B indicates that one or both valves will be capable of performing their post-fire shutdown role without additional fire protection enhancements. Therefore, the Commission hereby grants the exemption request identified in Section IV above.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the environment (53 FR 13454).

Dated at Rockville, Maryland, this 29th day of April 1988. .

FOR THE NUCLEAR REGULATORY COMMISSION

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