

JUN 19 1986

Docket No. 50-305

Mr. D. C. Hintz  
Manager - Nuclear Power  
Wisconsin Public Service Corp.  
P.O. Box 19002  
Green Bay, Wisconsin 53407-9002

Dear Mr. Hintz:

SUBJECT: EXEMPTION FROM CERTAIN REQUIREMENTS OF SECTION III.G.2 APPENDIX R  
TO 10 CFR PART 50, INSIDE CONTAINMENT BUILDING - KEWAUNEE NUCLEAR POWER  
PLANT

By letter dated May 15, 1985, you requested an exemption from the technical requirements of 10 CFR Part 50.48, "Fire Protection," for the Kewaunee Nuclear Power Plant. Specifically, you requested exemption from Section III.G.2.d of Appendix R to 10 CFR Part 50, to the extent that it requires redundant shutdown related systems in a non-inerted containment to be separated by more than 20-feet and that such separation is free of intervening combustibles and fire hazards. To support the exemption, you provided an alternate fire protection configuration with a supporting safety analysis.

On the basis of the staff evaluation included as part of the enclosed exemption, the Commission has granted your exemption request pursuant to 10 CFR Part 50.12. The exemption is effective as of the date of this letter. This action completes our TAC No. 57722. The exemption is being forwarded to the Office of the Federal Register for publication.

Sincerely,

*/s/*  
George E. Lear, Director  
PWR Project Directorate #1  
Division of PWR Licensing-A

Enclosure:  
Exemption

cc: See Next Page

\*SEE PREVIOUS CONCURRENCE

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*See prior*

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Mr. D. C. Hintz  
Wisconsin Public Service Corporation

Kewaunee Nuclear Power Plant

cc:

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of  
WISCONSIN PUBLIC SERVICE  
CORPORATION  
(Kewaunee Nuclear Power Plant)

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Docket No. 50-305

EXEMPTION

I.

Wisconsin Public Service Corporation (the licensee) is the holder of Facility Operating License No. DPR-43 which authorizes the operation of the Kewaunee Nuclear Power Plant (the facility) at steady-state power levels not in excess of 1650 megawatts thermal. This license provides, among other things, that the facility is subject to all rules, regulations, and Orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in effect. The facility is a pressurized water reactor (PWR) located in Kewaunee County, Wisconsin.

II.

10 CFR 50.48, "Fire Protection," and Appendix R to 10 CFR Part 50, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," set forth certain specific fire protection features required to satisfy the General Design Criterion related to fire protection (Criterion 3, Appendix A to 10 CFR Part 50).

Section III.G of Appendix R requires fire protection of safe shutdown capability for structures, systems, and components important to safe shutdown.

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## III.

Specifically, Subsection III.G.2 requires that one train of cables and equipment necessary to achieve and maintain safe shutdown be maintained free of fire damage by stated means.

By letter dated May 15, 1985 the licensee requested an exemption involving a single issue, namely cable combustibility.

The licensee requested an exemption from the technical requirements of Section III.G.2.d. to the extent that it requires redundant shutdown-related systems in a non-inerted containment to be separated by more than 20 feet that are free of intervening combustibles and fire hazards.

The electrical penetrations for Train A (dedicated shutdown) and Train B (alternate shutdown) enter the containment at the 616-foot elevation. In general, redundant shutdown cables and components are separated by more than 20 feet horizontally. Where less than 20 feet of horizontal separation exist, the licensee has committed to meet the requirements of Section III.G by completely separating redundant shutdown-related systems by a radiant energy shield. Where more than 20 feet of spatial separation exist, the intervening space between shutdown cables and components may contain cables with combustible insulation. Other combustibles inside containment include the wood reactor vessel O-ring storage container and lube oil for the reactor coolant pumps (RCP).

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The wooden O-ring container is located more than 50 feet from the nearest electrical penetration. The wood materials have ignition temperatures above 378°F and it is impossible to attain these temperatures in containment and such a fire would not involve both the dedicated and alternate shutdown system cables within containment. Based on the above, the wooden container can be eliminated from further consideration.

The RCP Lube Oil has a flash point of 400°F and an ignition point to fire of 500°F. The lube oil collection system is seismically qualified. Any leakage would be collected and drained to a closed tank far removed from the safe shutdown systems. Assuming a lube oil fire and the effects of the fire, hot gasses and smoke, it would be widely separated vertically from the alternate and dedicated shutdown systems and such a fire would be inside the RCP vaults which are constructed of 3-foot thick concrete walls equivalent to a greater than 3-hour fire barrier; the rule requires only a 3-hour barrier. Based on the above seismically qualified collection system, type of oil (high flash and ignition points), vertical separation and 3-foot vault walls, a lube oil fire can be eliminated from further consideration as a credible fire hazard.

Existing fire protection includes a fire detection system at the penetration area and manual fire fighting equipment.

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The licensee justified the exemption on the basis that a fire at the wood storage container would not affect systems for redundant shutdown trains. In addition, the RCP lube oil was eliminated as a credible fire hazard. Also, the cables are IEEE 383 qualified and of limited quantity and, therefore, would not produce a fire which would represent a threat to redundant systems. Based on our evaluation above, we conclude that the licensee's analysis is acceptable.

It is the staff's judgement that, under these conditions, a fire would, at most, cause damage to systems from one shutdown division, but would not be able to propagate horizontally and damage the redundant division before self extinguishing or being suppressed by the plant fire brigade.

The May 15 letter also provided information relevant to the "special circumstances" finding required by revised 10 CFR 50.12(a) (see 50 FR 50764). The licensee stated that "...the cost of compliance in this case is not commensurate with the improved margin of safety. Compliance would require the addition of 'radiant energy heat shields.' The costs of the materials and installation associated with these heat shields is estimated to be in excess of one million dollars. A further incalculable cost would be incurred as a result of having to maintain the walls and the increased time that will be required to perform maintenance on equipment in their vicinity." In addition, the licensee stated that a level of safety equivalent to that of Section III.G.2 will prevail if we grant the exemption. The staff concludes that

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"special circumstances" exist for the licensee's requested 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. See 10 CFR 50.12(a)(2)(ii).

Based on the above evaluation, the staff concludes that the existing fire protection with the proposed modifications provides an equivalent level of safety to that achieved by compliance with Section III.G. Therefore, the licensee's request for exemption in Containment is granted.

#### IV.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, as discussed in Section III, the exemption is authorized by law, will not present an undue risk to public health and safety, is consistent with the common defense and security and is justified by special circumstances. Therefore, the Commission grants exemption from the requirements of Section III.G of Appendix R to 10 CFR Part 50 to the extent discussed in Section III above.

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Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the environment (51 FR 8722, March 13, 1986),

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas M. Novak, Acting Director  
Division of PWR Licensing-A  
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland this  
19th day of June 1986

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