July 18, 1995

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Mr. Robert E. Link, Vice President
Nuclear Power Department
Wisconsin Electric Power Company
231 West Michigan Street, Room P379
Milwaukee, WI 53201

SUBJECT: POINT BEACH NUCLEAR PLANT, UNIT NOS. 1 AND 2 - ISSUANCE OF EXEMPTION FROM CERTAIN TECHNICAL REQUIREMENTS OF APPENDIX R TO 10 CFR PART 50 (TAC NOS. M90066 AND M90067)

Dear Mr. Link:

The Commission has granted the enclosed exemption from certain requirements of Appendix R to 10 CFR Part 50 for Point Beach Nuclear Plant, Unit Nos. 1 and 2. The exemption is granted in response to your application dated August 5, 1994, as supplemented by letters dated September 9, 1994, October 31, 1994, and February 28, 1995. The exemption allows three new cable trays, which were installed as part of the diesel generator addition project, to remain in place in the auxiliary feedwater pump fire area. This is acceptable because the plant configuration, administrative controls, and the fire protection provided for the pump fire area give reasonable assurance that equipment and cabling required to achieve and maintain safe shutdown will remain operable following a fire in the area.

We find that granting the exemption is authorized by law, will not present an undue risk to the public health and safety, is consistent with the common defense and security, and meets the special circumstances described in 10 CFR 50.12(a)(2)(ii). In addition, pursuant to 10 CFR 51.32, the Commission has determined that granting this exemption will have no significant impact on the environment (60 FR35755). A copy of the exemption is being forwarded to the Office of the Federal Register for publication.

Sincerely,
ORIGINAL SIGNED BY:

Allen G. Hansen, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket Nos. 50-266
and 50-301

Enclosure: Exemption

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

July 18, 1995

Mr. Robert E. Link, Vice President
Nuclear Power Department
Wisconsin Electric Power Company
231 West Michigan Street, Room P379
Milwaukee, WI 53201

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Enclosure: Exemption

cc w/encls: See next page

Mr. Robert E. Link, Vice President
Wisconsin Electric Power Company

Point Beach Nuclear Plant
Unit Nos. 1 and 2

cc:

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U.S. Nuclear Regulatory Commission
6612 Nuclear Road
Two Rivers, Wisconsin 54241

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
Wisconsin Electric Power Company	)	Docket Nos. 50-266 and 50-301
	)	
(Point Beach Nuclear Plant, Units 1 and 2)	)	

EXEMPTION

I.

Wisconsin Electric Power Company (WEPCO, the licensee) is the holder of Facility Operating License Nos. DPR-24 and DPR-27 which authorize operation of Point Beach Nuclear Plant (PBNP), Unit Nos. 1 and 2. The units are pressurized water reactors (PWR) located in Manitowoc County, Wisconsin. 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.

II.

Section III.G.1 of Appendix R to 10 CFR Part 50 requires, in part, that fire protection features shall be provided for structures, systems, and components important to safe shutdown and that one train of systems necessary to achieve and maintain hot shutdown conditions be free of fire damage.

Section III.G.2 of Appendix R requires that (except as provided for in Section III.G.3), where cables or equipment (including associated nonsafety 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, certain specified means be provided to ensure that one of the redundant trains is free of fire damage.

Pursuant to 10 CFR 50.12(a), the NRC may grant exemptions from the requirements of the regulations (1) which are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security; and (2) where special circumstances are present.

By letter dated August 5, 1994, as supplemented by letters dated September 9, 1994, October 31, 1994, and February 28, 1995, the licensee requested an exemption from Section III.G.2.b of Appendix R to 10 CFR Part 50, to the extent that it requires the separation of redundant trains of safe shutdown cables and equipment by a horizontal distance of more than 20 feet, with no intervening combustibles, in the auxiliary feedwater pump fire area. Intervening combustibles in the form of cable fill in three cable trays, added as part of the diesel generator addition project, are located within the separation space between redundant trains of cables and equipment required to achieve and maintain safe shutdown after a fire. In addition, the horizontal separation provided between redundant auxiliary feedwater pumps is only 14 feet.

The staff previously granted an exemption for intervening combustibles in this fire area in a Safety Evaluation dated July 3, 1985. This evaluation stated that the minimum separation between redundant trains was 26 feet with a maximum separation of 60 feet. However, this space contains cable trays installed horizontal and parallel to the trays containing redundant cables. Based on the wide separation of the redundant trains, the configuration and limited amount of intervening combustibles, and the installed automatic Halon suppression system, the staff concluded that it is unlikely that an exposure fire or electrically initiated fire of a sufficient magnitude to prevent safe

shutdown could develop prior to actuation of the Halon system and the arrival of the fire brigade. The three new cable trays (GW01-03, GN01-03, and GC01-02), installed as part of the diesel generator addition project, are routed perpendicular to the redundant trains and provide a continuous path of combustibles between the redundant trains of equipment and cabling. This new configuration is outside the scope of the exemption granted to the licensee on July 3, 1985.

The auxiliary feedwater pump fire area contains the following safe shutdown equipment and cables: two steam-driven and two motor-driven auxiliary feedwater pumps; local control panels for the motor-driven feedwater and service water pumps; power and control cables for the charging pumps; instrumentation equipment and cables; residual heat removal and component cooling water pump cables; and emergency AC power and DC control cables.

One auxiliary feedwater pump and one service water pump are required to remain operable to achieve hot shutdown following a fire. The conduits containing power cables for one train of charging pumps for each unit in this area are enclosed in a fire barrier having a rating of one hour, in accordance with the requirements of Section III.G.2.c of Appendix R to 10 CFR Part 50. Instrumentation cables in trays and some conduits are separated by a minimum horizontal distance of 20 feet. This separation distance is not free of intervening combustibles. Instrumentation cables routed in conduit that are not separated by a horizontal distance of 20 feet have been enclosed in a fire barrier assembly having a rating of 1 hour, in accordance with the requirements of Section III.G.2.c of Appendix R to 10 CFR Part 50. The licensee has provided repair procedures and materials so that systems in this area necessary to achieve and maintain cold shutdown can be repaired within 72

hours, in accordance with the requirements of Section III.G.1.b of Appendix R to 10 CFR Part 50.

The cables installed in the new trays meet the flame spread requirements specified in IEEE 383. To minimize the potential for fire propagation involving the new cable trays, the licensee has installed sheet metal tray covers on the top and bottom of each tray, installed a single layer of ceramic fiber blanket on top of the cables in each tray, and installed fire breaks at each end of each tray. In Generic Letter 86-10, "Implementation of Fire Protection Requirements," the staff stated that cables routed in trays that are either fully open or fully closed should be considered as intervening combustibles. However, cables in trays having a solid sheet metal bottom, sides and top, if protected by automatic detection and suppression systems, have been found acceptable under the exemption process. The auxiliary feedwater pump fire area is provided with an automatic fire detection and alarm system that was designed in accordance with National Fire Protection Association (NFPA) 72D, "Standard for the Installation, Maintenance, and Use of Proprietary Protective Signalling Systems," and NFPA 72E, "Standard on Automatic Fire Detectors." The Halon system installed in the area was designed in accordance with NFPA 12A, "Halon 1301 Fire Extinguishing Systems."

To evaluate the fire hazard associated with this modification and the adequacy of the protection provided, the licensee contracted with Hartford Steam Boiler-Professional Loss Control to perform a fire protection engineering analysis. This analysis was submitted by licensee letter dated February 28, 1995. The analysis concluded that the new cable trays would not serve as an intervening combustible and, therefore, would not provide a path for fire propagation between redundant safe shutdown trains.

Redundant equipment and cabling in the auxiliary feedwater pump fire area are separated by a horizontal distance ranging from a minimum of 14 feet, for the adjacent motor-driven auxiliary feedwater pumps, to 31 feet for the local control panels. The separation between the steam-driven auxiliary feedwater pumps is 29 feet. Each auxiliary feedwater pump is separated from the other pumps by concrete missile barrier walls that extend from the floor of the room to the ceiling.

Combustibles located in this area consist primarily of cable insulation on the approximately 184,000 feet of cable exposed in trays, approximately two gallons of lube oil located in the auxiliary feedwater pumps, and any transient combustibles that may be used or stored. Transient combustibles and hot work activities in this area are administratively controlled by plant procedures.

Fire detection and suppression systems designed, installed and maintained in accordance with the requirements prescribed in the NFPA codes have been demonstrated to be effective in the early notification and suppression of fires at nuclear power facilities. Actuation of the automatic Halon fire extinguishing system, coupled with the rapid response of the plant fire brigade to the notification provided by the fire detection system installed in this area, gives reasonable assurance that fires in the auxiliary feedwater pump fire area will be promptly detected, controlled, and extinguished and, therefore, do not present a significant hazard to plant safety.

Fire tests conducted by the NRC, other government agencies, and the nuclear industry to evaluate the effectiveness of enclosing cable trays with sheet metal covers, or installing ceramic fiber blankets over cables in trays,

have demonstrated that these methods, used independently or in combination, are effective in reducing the potential for ignition of, and flame spread along, cables installed in trays. The tests sponsored by the NRC were published in NUREG/CR-0381, SAND 78-1456, "A Preliminary Report on Fire Protection Research Program Fire Barriers and Fire Retardant Coating Tests." Flame spread tests of the ceramic fiber blanket used in the auxiliary feedwater pump room (Carborundum Durablanket-S), in accordance with Underwriters Laboratories Test Standard 723, "Test for Surface Burning Characteristics of Building Materials," demonstrate that this material has a flame spread rating of 0 and a smoke developed rating of 0. The use of IEEE 383 cables, the ceramic fiber blanket, and sheet metal cable tray covers provide reasonable assurance that a fire will not spread along the cables from one train of redundant safe shutdown equipment to the other.

The plant configuration, administrative controls, and the fire protection provided for the auxiliary feedwater pump fire area provide reasonable assurance that at least one train of equipment and cabling required to achieve and maintain safe shutdown will remain operable following a fire in this area. This determination is based upon: (1) the code compliant automatic detection and suppression systems provided in the area; (2) the manual fire suppression capability provided in this area; (3) the sheet metal cable tray covers installed on the top and bottom of cable trays GN01-03, GW01-03 and GG01-04; (4) the ceramic fiber blanket installed on top of the cables in the new trays; (5) the use of IEEE 383 qualified cable in the new trays; (6) the spatial separation provided between redundant trains of equipment required for safe shutdown after a fire; and (7) the lack of sufficient combustibles in the vicinity of the new trays to present an exposure fire hazard.

On the basis of this evaluation, the Commission concludes that the three cable trays installed as part of the diesel generator addition project do not present an undue risk to the public health and safety. Therefore, the licensee's request for an exemption from the technical requirements of Section III.G.2.b of Appendix R to 10 CFR Part 50, for the auxiliary feedwater pump fire area is acceptable.

III.

The Commission has determined, pursuant to 10 CFR Part 50.12, that this exemption as described in Section II above 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. Furthermore, the Commission has determined that special circumstances as provided in 10 CFR 50.12(a)(2)(ii) are present in that application of the regulation in the particular circumstances is not necessary to achieve the underlying purpose of the rule. The underlying purpose of Section III.G.1 of Appendix R is to ensure that one train of systems needed for hot shutdown be free of fire damage. Application of this section (to the extent that it requires the separation of redundant trains of safe shutdown cables and equipment by a horizontal distance of more than 20 feet, with no intervening combustibles, in the auxiliary feedwater pump fire area) is not necessary to achieve the underlying purpose of the rule because the licensee's proposal still provides reasonable assurance that one safe shutdown train will be free of fire damage.

IV.

Accordingly, the Commission hereby grants an exemption from the requirements of Section III.G.2.b of Appendix R to 10 CFR Part 50 to allow the intervening combustibles in the form of cable fill in three cable trays to

remain installed in the auxiliary feedwater pump fire area. These trays were added as part of the diesel generator addition project, and are located within the separation space between redundant trains of cables and equipment required to achieve and maintain safe shutdown after a fire.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the quality of the human environment (60 FR 35755).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

ORIGINAL SIGNED BY:
Jack W. Roe

Jack W. Roe, Director
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 18th day of July 1995.

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Dated at Rockville, Maryland
this 18th day of July 1995.