January 4, 1988

Docket Nos. 50-266
and 50-301

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Mr. C. W. Fay, Vice President
Nuclear Power Department
Wisconsin Electric Power Company
231 W. Michigan Street, Room 308
Milwaukee, Wisconsin 53201

Dear Mr. Fay:

SUBJECT: 10 CFR PART 50, APPENDIX R EXEMPTION REQUESTS (TACS 61809 AND (61810)

Your June 11, 1986, letter requested exemptions from the requirements of 10 CFR Part 50, Appendix R, Section III.G.3.b for the Component Cooling Water Heat Exchanger and Boric Acid Tank Room, and the Computer and Instrument Rack Room for Point Beach Units 1 and 2. Pursuant to 10 CFR 50.12(a)(2), the Commission will not consider granting an exemption from the regulations unless special circumstances are present. Your June 11, 1986, exemption requests do not identify the special circumstances which are the bases for the proposed exemptions.

We request that within 30 days of receipt of this letter you identify the special circumstances you feel exist pursuant to 10 CFR 50.12 to enable the staff to complete its review of your requested exemptions. We remind you that merely citing the special circumstances you feel exist is not sufficient. For each exemption requested, a discussion of the special circumstances should be provided.

Do not hesitate to call us if you have any questions.

Sincerely,

Original Signed By:

David H. Wagner, Project Manager
Project Directorate III-3
Division of Reactor Projects

cc: See next page

*SEE PREVIOUS CONCURRENCE

| Office: | LA/PDIII-3 | PM/PDIII-3 | PD/PDIII-3 |
|---|---|---|---|
| Surname: | *PKreutzer | DWagner/rl | KPerkins |
| Date: | 12/31/87 | 01/4/88 | 01/ /88 |

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231 W. Michigan Street, Room 308
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Dear Mr. Fay:

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Your June 11, 1986, letter requested exemptions from the requirements of 10 CFR Part 50, Appendix R, Section III.9.3.b for the Component Cooling Water Heat Exchanger and Boric Acid Tank Room, and the Computer and Instrument Rack Room for Point Beach Units 1 and 2. Pursuant to 10 CFR 50.12(a)(2), the Commission will not consider granting an exemption from the regulations unless special circumstances are present. Your June 11, 1986, exemption requests do not identify the special circumstances which are the bases for the proposed exemptions.

We request that within 30 days of receipt of this letter you identify the special circumstances you feel exist pursuant to 10 CFR 50.12 to enable the staff to complete its review of your requested exemptions. We remind you that merely citing the special circumstances you feel exist is not sufficient. For each exemption requested, a discussion of the special circumstances should be provided.

Do not hesitate to call us if you have any questions.

Sincerely,

David H. Wagner, Project Manager
Project Directorate III-3
Division of Reactor Projects

cc: See next page

| Office: | LA/PDIII-3 | PM/PDIII-3 | PD/PDIII-3 |
|---|---|---|---|
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| Date: | 12/31/87 | 12/ /87 | 12/ /87 |

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7590-01

12/31/86

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

| | | |
|---|---|---|
| In the Matter of | ) | Docket Nos. 50-266 |
| | ) | and 50-301 |
| WISCONSIN ELECTRIC POWER COMPANY | ) | |
| | ) | |
| Point Beach Nuclear Plant Units 1 and 2 | ) | |

EXEMPTION

I.

The 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, Units 1 and 2 (the facilities) at a steady-state power level not to exceed 1518 megawatts thermal. The facilities are pressurized water reactors (PWR) located in Manitowoc County, Wisconsin. These licenses provide, among other things, that the facilities are subject to all rules, regulations, and Orders of the Commission now or hereafter in effect.

II.

On November 19, 1980, the Commission published a revised Section 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 specified requirements for a particular aspect of the fire protection features at a nuclear power plant.

One of these subsections, III.G, is the subject of the licensee's exemption request.

Section III.G.2 of Appendix R requires that one train of cables and equipment necessary to achieve and maintain safe shutdown be maintained free of fire damage by one of the following means:

a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier.

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.

c. Enclosure of cables and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

III.

By letter dated June 30, 1982, the licensee submitted its response to 10 CFR Part 50, Appendix R. This response, as supplemented on September 29,

and October 11, 1982, contained a fire hazards analysis. This analysis was the foundation for exemptions requested by the licensee. By draft safety evaluation dated January 14, 1983, the NRC proposed to deny all exemptions requested except for the control room and the hydrogen hazard fire protection analysis. On March 22, 1983, an appeal meeting was held with the NRC; as a result, the licensee submitted another document dated April 28, 1983. This submittal revised certain exemption requests, withdrew unnecessary exemption requests, proposed numerous plant modifications, and created two new exemption requests pertaining to the auxiliary building. The licensee also submitted a final fire protection report in October 1983, which described the alternate safe shutdown features and requested two additional new exemptions related to the auxiliary building. By letter dated July 3, 1985, the NRC approved exemptions for Fire Zones 1, 3, 2, 4, 7 and Fire Areas 5 and 8. Exemption requests for Fire Zone 10, portions of Fire Zone 2, and portions of Fire Area 8 were determined not to be required. By letter dated August 21, 1985, the NRC denied the switchgear room (Fire Area 6) exemption request. This exemption addresses the two exemptions requested by the licensee's April 28, 1983 submittal and the two exemption requests identified in the October 1983 final report.

By letters dated May 9, 1986 and October 10, 1986, the licensee provided information relevant to the "special circumstances" finding required by revised 10 CFR 50.12(a) (See 50 FR 50764). The licensee stated that existing and

proposed fire protection features at Point Beach accomplish the underlying purpose of the rule. The licensee has provided information demonstrating that suppression and detection sufficient to protect against the fire hazards of the area has been provided for the auxiliary building. Further, the licensee has demonstrated that boundary protection and existing fire barriers for the 46 foot elevation of the auxiliary building are sufficient to protect against the fire hazards associated with that area of the auxiliary building. The licensee has also demonstrated that the existing protection afforded the residual heat removal pump zone is sufficient without installation of automatic suppression. Lastly, the licensee has demonstrated that the existing fire protection features provide sufficient and equivalent protection to that which would be provided by meeting the 20 foot separation requirement. Implementing additional modifications to provide additional suppression systems, detection systems, and fire barriers would require the expenditure of additional engineering and construction resources as well as the associated capital costs and would not enhance the fire protection capability or safe shutdown capability above that provided by the licensee's proposed modifications and existing features.

The staff has reviewed the licensee's submittal and concludes that "special circumstances" exist for the licensee's requested exemptions in that application of the regulation in these particular circumstances is not necessary to achieve the underlying purposes of Appendix R to 10 CFR Part 50. See 10 CFR 50.12(a)(2)(ii).

The following is a list of active exemption requests and reflects the latest status:

1. Service Water Pump Room Fire Zone, Elevation 7 feet 0 inch. An exemption was requested from the specific requirements of Section III.G.2.b to the extent that 20 feet of separation without intervening combustibles is not provided between redundant safe shutdown equipment.
2. Residual Heat Removal Pump Fire Zone, Elevation -19 feet 3 inches. An exemption was requested from the specific requirements of Section III.G.2.b to the extent that automatic fire suppression is not installed within the common residual heat removal (RHR) pump room area.
3. Auxiliary Building Fire Area, Elevations -19 feet 3 inches; -5 feet 3 inches; 8 feet; 26 feet; and 46 feet. An exemption was requested from the specific requirements of Section III.G.2.b. to the extent that automatic fire suppression is not installed in the fire area.
4. Auxiliary Building, Elevation 46 feet. An exemption was requested from the specific requirements of Section III.G.2.a to the extent that the floor of the auxiliary building central area is not a 3-hour fire rated barrier.

Evaluation

The licensee requested an exemption from Section III.G.2.b to the extent that it requires 20 feet of separation without intervening combustibles between redundant safe shutdown equipment in the service water pump room fire zone on elevation 7 feet.

The service water pump room fire zone is a separate pump room within the circulating water pumphouse. This fire zone is constructed of reinforced concrete and metal panel wall sections. The roof and one wall are common components between the service water pump room and the circulating water pumphouse. The upper section of the common and east walls are constructed of metal grate; therefore, there is a free exchange of air between the service water pump room and the circulating water pumphouse.

The service water pump room is a rectangular shaped room with a ceiling height of 22 feet. The total room area is about 1,000 square feet. The total fire loading is 13,600 Btu per square foot. This fire load translates into a fire severity of less than 12 minutes as represented by the ASTM E-119 time-temperature curve.

The safe shutdown systems in the service water pump room include the six service water pumps for Units 1 and 2. There are no exposed power or control cables. Any one of the six service water pumps is capable of providing the required service water flow for both units to achieve stable hot shutdown. In addition, any two of the six pumps are required for both units to achieve cold shutdown.

The existing fire protection includes area wide smoke detection and an automatic wet pipe fire suppression system that has redundant connections to the fire main. Manual fire fighting capability is in the form of fire

extinguishers and two 1½-inch hose reel stations located adjacent to the entrance doors. Although 20 feet of separation without intervening combustibles is not available between redundant systems, the licensee has installed a partial height, noncombustible wall between the service water pumps such that they are divided into two sets of three.

Because the fire load in these locations is low, if a fire were to occur, we expect it would develop slowly, with initially low heat release and slow room temperature rise. Because of the presence of the early warning fire detection systems, the fire would be detected in its incipient stages. The fire brigade would then be dispatched and would extinguish the fire manually. Until the fire was extinguished, the noncombustible, partial height partition between the two sets of shutdown service water pumps and the automatic sprinkler system would provide sufficient passive and active fire protection.

Based on the above evaluation, the staff concludes that the existing fire protection combined with the proposed fire protection measures in the service water pump room provides a level of fire protection equivalent to the technical requirements for Section III.G.2.b of Appendix R.

The licensee also requested an exemption from the specific requirement of Section III.G.2.b to the extent that automatic fire suppression is not installed with the common RHR pump room area on elevation -19 feet 3 inches.

The RHR pump room is a fire zone and is below grade at elevation -19 feet 3 inches. This fire zone is constructed of floors, ceilings, and walls having 3-foot-thick reinforced concrete. There are four RHR pump rooms that open into a common fifth room. Each RHR pump is in its own room. Two RHR pumps are for Unit 1 and two RHR pumps are for Unit 2.

Each RHR pump room has about 88 square feet and there are no fire loads on the floor in this zone. There are no intervening combustibles and the fire severity, as represented by the ASTM E-119 time-temperature curve, would be less than 3 minutes or negligible.

The safe shutdown equipment in this zone consists of the four RHR pumps in two pairs. Only one of each pair is required for safe shutdown of the two units. There are no power or control cables required for hot shutdown located in this fire zone. Any cable damaged can be replaced or repaired within the time span allowed for cold shutdown.

The existing fire protection includes a fire detection system throughout the fire zone. There is no automatic fire suppression system installed within the area. Manual fire fighting capability exists within the auxiliary building in the form of fire extinguishers and hose stations.

The RHR pump fire zone does not comply with the technical requirements of Section III.G.2.b of Appendix R because an automatic fire suppression system has not been installed in the fire zone.

The staff's principal concern with the level of fire protection in the RHR pump fire zone was that because of the absence of an area wide automatic fire suppression system, a fire of significant magnitude could develop and damage redundant RHR pumps. However, the fire load in these locations is negligible. If a fire were to occur, we expect that it would develop slowly, with initially low heat release and slow room temperature rise. Because of the presence of the early warning fire detection systems,

the fire would be detected in its incipient stages. The fire brigade would then be dispatched and would extinguish the fire manually. The reinforced concrete barriers between the redundant RHR pumps would provide sufficient passive protection to provide reasonable assurance that one shutdown division of RHR pumps would remain free of fire damage.

The staff finds that the installation of an automatic fire suppression system would not significantly increase the level of fire protection in the RHR pump fire zone.

Based on the above evaluation, the staff concludes that the existing level of fire protection for the RHR pump fire zone provides a level of fire protection equivalent to the technical requirements for Section III.G.2.b of Appendix R.

The licensee also requested an exemption from the specific requirement of Section III.G.2.b to the extent that automatic fire suppression is not installed in the auxiliary building fire area on elevations -19 feet 3 inches; -5 feet 3 inches; 8 feet; 26 feet; and 46 feet.

The auxiliary building is composed of numerous zones and several small fire areas. It can be viewed as having a north, south, and west wing with a central area. The elevations range from -19 feet 3 inches to 46 feet. Penetration seals to other plant structures and construction joints are 3-hour fire rated. Doors exiting this area are 3-hour fire rated. These elevations are open to each other via an open stairwell and equipment hatch. The fire loading in this wing ranges from 8,000 to 28,000 Btu per square foot. This translates into a fire severity of less than 21 minutes as represented by the ASTM E-119 time-temperature curve.

The only safe shutdown equipment located in this area are the RHR heat exchangers, which are in separate compartments; the 480-V motor control centers (MCCs) B33 and B43; and the component cooling water (CCW) heat exchangers. There are no safe shutdown equipment or cables required for hot shutdown located in this area. Redundant trains of RHR cables are located on all elevations of this wing in configurations which are susceptible to damage from a single fire. However, the RHR system is not required for hot shutdown. A dedicated set of RHR pump cables will be provided for each unit. The component cooling water pumps are susceptible to damage from a single fire, but they are not required for hot shutdown. A spare pump and cables are being provided for the purpose of a repair.

Fire protection for the auxiliary building consists of an area wide fire detection system, fire extinguishers, and two 1½-inch hose reel stations located on the 8-foot elevation. The licensee verified that the lower elevations can be serviced by one of these hose stations. Also, several locations have wet pipe sprinkler systems.

The fire protection in the auxiliary building does not comply with the technical requirements of Appendix R, Section III.G.2.b because an automatic fire suppression system has not been installed in the area.

The staff's principal concern with the level of fire protection in the auxiliary building was that because of the absence of an area wide automatic fire suppression system, a fire of significant magnitude could develop and damage redundant shutdown-related systems, e.g., the MCCs or

CCWs. However, the fire load in these locations is low. If a fire were to occur, the staff anticipates that it would develop slowly, with initially low heat release and slow room temperature rise. Because of the presence of the early warning fire detection systems, the fire would be detected in its incipient stages. The fire brigade would then be dispatched and would extinguish the fire. In the case of the redundant RHR cables subject to damage from a single fire, spare cables have been made available for a repair, which is allowed since the RHR system is not required for hot shutdown. The same applies to the CCW cables and pumps, and a spare CCW pump also will be provided and kept available in addition to the necessary cables.

Finally, in rooms 166, 142, 151, and 156, automatic sprinkler systems already exist. Also, areas such as the RHR pump room and six charging pump rooms have been previously evaluated and approved with respect to the absence of an automatic fire suppression system. The above areas represent over one half of the total auxiliary building area. Therefore, the balance of areas represent non-critical areas containing no hot shutdown equipment and low fire loadings. The staff finds that the installation of additional automatic fire suppression systems would not significantly increase the level of fire protection in the auxiliary building.

Based on the above evaluation, the staff concludes that the existing fire protection combined with the proposed fire protection measures in the above fire zones provides a level of fire protection equivalent to the technical requirements of Section III.G.2.b of Appendix R.

The licensee also requested an exemption from the specific requirement of Section III.G.2.a to the extent that the floor of the auxiliary building central area on elevation 46 feet is not a 3-hour fire rated barrier.

The construction and layout of the auxiliary building are presented in detail in the preceding exemption request. Essentially, the auxiliary building is a single fire area composed of numerous zones and rooms. Redundant trains installed in the auxiliary building are separated by the floor/ceiling assembly on elevation 46. The floor/ceiling assembly is not a 3-hour fire rated barrier because it contains open stairways, doorways, and several hatches. With the exception of the CCW heat exchangers, there are no safe shutdown equipment or cables located on the 46-foot elevation. Fire protection exists in the form of a fire detection system, fire extinguishers, and 1½-inch hose reel stations. The fire load is low (8,000 Btu per square foot), and this translates into a fire severity of less than 6 minutes as represented by the ASTM E-119 time-temperature curve. The fire protection in the auxiliary building, elevation 46 feet, does not comply with the technical requirements of Section III.G.2.a of Appendix R because a complete 3-hour fire rated barrier has not been provided at the floor level within the central areas.

The staff's principal concern with the level of fire protection in the auxiliary building central floor area at elevation 46 feet was that because of the absence of a complete 3-hour fire rated floor, a fire of significant magnitude could develop and damage redundant safe shutdown cables at lower levels. However, there is only a low fire load on the floor area and there

are no cables or equipment required for hot shutdown in and within the central area. If a fire were to occur, then we expect it would develop slowly, with initially a low heat release and slow area temperature rise. Because of the presence of the early warning fire detection system, the fire would be detected in its incipient stages. The fire brigade would then be dispatched and would extinguish the fire. Until the fire was put out, the existing floor with its hatch covers between the central floor area on elevation 46 feet and the location of safe shutdown equipment and cables on the lower elevations would provide sufficient passive protection to provide us with reasonable assurance that one division would remain free of fire damage.

Based on the above evaluation, the staff concludes that the existing fire protection for the auxiliary building central floor area at elevation 46 feet provides a level of fire protection equivalent to the technical requirements of Section III.G.2.a of Appendix R.

IV.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a), that (1) these exemptions as described in Section III 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) special circumstances are present for the exemptions in that application of the regulation in these particular circumstances is not necessary to achieve the underlying purposes of Appendix R to 10 CFR Part 50. Therefore, the Commission grants the exemptions from the requirements of Section III.G of Appendix R to 10 CFR Part 50 to the extent discussed in Section III above.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of these exemptions will have no significant impact on the environment ( December 29, 1986, 51 FR 46961).

The Safety Evaluated dated December 31 , 1986, related to this action and the above referenced submittals by the licensee are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the local public document room located at the Joseph P. Mann Public Library, 1516 Sixteenth St., Two Rivers, Wisconsin.

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
31st day of December, 1986.