

October 6, 1997

Mr. Richard R. Grigg  
Chief Nuclear Officer  
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 THE REQUIREMENTS OF 10 CFR 70.24  
(TAC NOS. M98973 AND M98974)

Dear Mr. Grigg:

By letter dated June 7, 1997, you requested an exemption from the requirements of  
10 CFR 70.24 concerning criticality monitors at the Point Beach Nuclear Plant (PBNP).

Based upon the information provided, there is reasonable assurance that irradiated and  
unirradiated fuel will remain subcritical during fuel handling and storage; furthermore, you  
maintain radiation monitors in accordance with PBNP's General Design Criterion 18 which is  
analogous to 10 CFR Part 50, Appendix A, Criterion 63. The low probability of a criticality  
together with your adherence to PBNP's General Design Criterion 18 constitute good cause  
for granting an exemption from 10 CFR 70.24.

The Commission, pursuant to 10 CFR 70.14, has issued the enclosed exemption for Point  
Beach Nuclear Plant.

Sincerely,

ORIGINAL SIGNED BY

Linda L. Gundrum, Project Manager  
Project Directorate III-1  
Division of Reactor Projects - III/IV  
Office of Nuclear Reactor Regulation

Docket Nos.: 50-266, 50-301

Enclosure: Exemption

cc w/encl: See next page

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Mr. Richard R. Grigg  
Wisconsin Electric Power Company

Point Beach Nuclear Plant  
Unit Nos. 1 and 2

cc:

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of )  
 )  
WISCONSIN ELECTRIC POWER COMPANY )  
 )  
(Point Beach Nuclear Plant, )  
Unit Nos. 1 and 2) )

Docket Nos. 50-266 and 50-301

EXEMPTION

I.

Wisconsin Electric Power Company (the licensee) is the holder of Facility Operating License Nos. DPR-24 and DPR-27, which authorize operation of the Point Beach Nuclear Plant, Units 1 and 2, respectively. The licenses provide, among other things, that the licensee is subject to all rules, regulations, and orders of the Commission now or hereafter in effect.

The facility consists of two pressurized-water reactors located at the licensee's site in Manitowoc County, Wisconsin.

II.

The Code of Federal Regulations at 10 CFR 70.24, "Criticality Accident Requirements," requires that each licensee authorized to possess special nuclear material shall maintain a criticality accident monitoring system in each area where such material is handled, used, or stored. Subsection a(2) of 10 CFR 70.24 specifies detection and sensitivity requirements that these monitors must meet. Subsection a(2) also specifies that all areas subject to criticality accident monitoring must be covered by monitoring devices.

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Subsection (a)(3) of 10 CFR 70.24 requires licensees to maintain emergency procedures for each area in which this licensed special nuclear material is handled, used, or stored and provides (1) that the procedures ensure that all personnel withdraw to an area of safety upon the sounding of a criticality accident monitor alarm, (2) that the procedures must include drills to familiarize personnel with the evacuation plan, and (3) that the procedures designate responsible individuals for determining the cause of the alarm and placement of radiation survey instruments in accessible locations for use in such an emergency. Subsection (b)(1) of 10 CFR 70.24 requires licensees to have a means to identify quickly personnel who have received a dose of 10 rads or more. Subsection (b)(2) of 10 CFR 70.24 requires licensees to maintain personnel decontamination facilities, to maintain arrangements for a physician and other medical personnel qualified to handle radiation emergencies, and to maintain arrangements for the transportation of contaminated individuals to treatment facilities outside the site boundary. Subsection (c) of 10 CFR 70.24 exempts Part 50 licensees from the requirements of subsection (b) of 10 CFR 70.24 for special nuclear material used or to be used in the reactor. Subsection (d) of 10 CFR 70.24 states that any licensee who believes that there is good cause why he should be granted an exemption from all or part of 10 CFR 70.24 may apply to the Commission for such an exemption and shall specify the reasons for the relief requested.

### III.

The special nuclear material that could be assembled into a critical mass at Point Beach Nuclear Plant is in the form of nuclear fuel; the quantity of special nuclear material other than fuel that is stored on site is small enough to preclude achieving a critical mass. The Commission technical staff has evaluated the possibility of an inadvertent criticality of the

nuclear fuel at Point Beach Nuclear Plant and has determined that such an accident cannot occur if the licensee meets the following seven criteria:

1. Only one new fuel assembly is allowed out of a shipping cask or storage rack at one time.
2. The k-effective does not exceed 0.95, at a 95% probability, 95% confidence level in the event that the fresh fuel storage racks are filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water.
3. If optimum moderation occurs at low moderator density, then the k-effective does not exceed 0.98, at a 95% probability, 95% confidence level in the event that the fresh fuel storage racks are filled with fuel of the maximum permissible U-235 enrichment and flooded with moderator at the density corresponding to optimum moderation.
4. The k-effective does not exceed 0.95, at a 95% probability, 95% confidence level in the event that the spent fuel storage racks are filled with fuel of the maximum permissible U-235 enrichment and flooded with pure water.
5. The quantity of forms of special nuclear material, other than nuclear fuel, that are stored on site in any given area is less than the quantity necessary for a critical mass.
6. Radiation monitors, as required by Point Beach Nuclear Plant General Design Criterion 18 which is analogous to 10 CFR Part 50, Appendix A, General Design Criterion 63, are provided in fuel storage and handling areas to detect excessive radiation levels and to initiate appropriate safety actions.
7. The maximum nominal U-235 enrichment is limited to 5 weight percent.

By letter dated June 7, 1997, Wisconsin Electric Power Company requested an exemption from 10 CFR 70.24. In this exemption request the licensee addressed the seven criteria given above. The Commission technical staff has reviewed the licensee's submittal

and has determined that Point Beach Nuclear Plant, Units 1 and 2, meets the criteria for prevention of inadvertent criticality; therefore, the staff has determined that it is extremely unlikely for an inadvertent criticality to occur in special nuclear materials handling or storage areas at Point Beach Nuclear Plant.

The purpose of the criticality monitors required by 10 CFR 70.24 is to ensure that, if a criticality were to occur during the handling of special nuclear material, personnel would be alerted to that fact and would take appropriate action. The staff has determined that it is extremely unlikely that such an accident could occur; furthermore, the licensee has radiation monitors, as required by Point Beach Nuclear Plant's General Design Criterion 18, in fuel storage and handling areas. Specifically, Point Beach Nuclear Plant's General Design Criterion 18 requires "Monitoring and alarm instrumentation shall be provided for fuel and waste storage and associated handling areas for conditions that might result in loss of capability to remove decay heat and to detect excessive radiation levels." These monitors will alert personnel to excessive radiation levels and allow them to initiate appropriate safety actions. The low probability of an inadvertent criticality together with the licensee's adherence to Point Beach Nuclear Plant's General Design Criterion 18 constitute good cause for granting an exemption to the requirements of 10 CFR 70.24.

#### IV.

The Commission has determined that, pursuant to 10 CFR 70.14, this exemption is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest. Therefore, the Commission hereby grants the Wisconsin Electric Power Company an exemption from the requirements of 10 CFR 70.24 for the Point Beach Nuclear Plant.

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 (62 FR 45883).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 6th day of October 1997.

FOR THE NUCLEAR REGULATORY COMMISSION

**Original signed by  
Samuel J. Collins**

Samuel J. Collins, Director  
Office of Nuclear Reactor Regulation

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