

OCT 20 1975

Dockets Nos. 50-266/301

Wisconsin Electric Power Company
Wisconsin Michigan Power Company
ATTN: Mr. Sol Burstein
Executive Vice President
231 West Michigan Street
Milwaukee, Wisconsin 53201

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The Commission has issued the enclosed Amendments Nos. 11 and 14 to Facility Operating Licenses Nos. DPR-24 and DPR-27 for the Point Beach Nuclear Plant, Units Nos. 1 and 2. The amendments include Changes Nos. 16 and 20 to the Technical Specifications and are in accordance with your application dated March 28, 1975, and Supplement dated June 25, 1975.

The amendments allow modification of the spent fuel storage racks and modify the Technical Specifications to place restrictions on spent fuel storage to limit the decay heat input to the spent fuel pool water.

We have determined that your proposal to install new seismic Category I spent fuel storage racks (288 storage locations) in the south pool is acceptable. However, we have also determined that your proposal to store fuel in two seismically unrestrained storage racks (48 storage locations) in the north pool and the non-seismic fuel handling equipment (5 storage locations) is not acceptable. Therefore the total approved spent fuel storage capacity at Point Beach Nuclear Plant is 351 fuel assemblies (i.e., 288 south pool locations plus 63 existing north pool locations).

The Commission's staff has evaluated the potential for environmental impact associated with operation of Point Beach Nuclear Plant, Units Nos. 1 and 2 in the proposed manner. From this evaluation, the staff has determined that there will be no significant environmental impact attributable to the proposed action. Having made this determination, the Commission has further concluded, pursuant to 10 CFR Part 51, Section 51.5(c)(1) that no environmental impact statement need be prepared for this action. Copies of the Negative Declaration, which is being filed with the Office of the Federal Register for publication and the Environmental Impact Appraisal are enclosed.

Copies of the related Safety Evaluation and the Federal Register Notice are also enclosed.

Sincerely,

George Lear, Chief
Operating Reactors Branch #5
Division of Reactor Licensing OELD

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SURNAME >	SATEets:kmf	JWetmore				Glear
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Dockets Nos. 50-266/301

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ATTN: Mr. Sol Burstein
Executive Vice President
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Milwaukee, Wisconsin 53201

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The Commission's staff has evaluated the potential for environmental impact associated with operation of Point Beach Nuclear Plant, Units Nos. 1 and 2 in the proposed manner. From this evaluation, the staff has determined that there will be no significant environmental impact attributable to the proposed action. Having made this determination, the Commission has further concluded, pursuant to 10 CFR Part 51, Section 51.5(c)(1) that no environmental impact statement need be prepared for this action. Copies of the Negative Declaration, which is being filed with the Office of the Federal Register for publication and the Environmental Impact Appraisal are enclosed.

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Sincerely,

George Lear, Chief
Operating Reactors Branch #5
Division of Reactor Licensing

OFFICE >	Enclosures and cc:				
SURNAME >	See next page				
DATE >					

Enclosures:

1. Amendments Nos. 11 and 14
2. Safety Evaluation
3. Federal Register Notice
4. Negative Declaration
5. Environmental Impact Appraisal

cc: w/enclosures

Mr. Bruce W. Churchill, Esquire
 Shaw, Pittman, Potts, Trowbridge & Madden
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 910 17th Street, N. W.
 Washington, D. C. 20006

Mr. William F. Eich, Chairman
 Public Service Commission
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 Hill Farms State Office Building
 Madison, Wisconsin 53702

Mr. Gary Williams
 Federal Activities Branch
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Mr. Arthur M. Fish
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

WISCONSIN ELECTRIC POWER COMPANY
WISCONSIN MICHIGAN POWER COMPANY

DOCKET NO. 50-266

POINT BEACH NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 11
License No. DPR-24

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Wisconsin Electric Power Company and Wisconsin Michigan Power Company (the licensees) dated March 28, 1975, and Supplement dated June 25, 1975, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations; and
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 3.B. of Facility License No. DPR-24 is hereby amended to read as follows:

"(B) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensees shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 16."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Karl R. Goller

Karl R. Goller, Assistant Director
for Operating Reactors
Division of Reactor Licensing

Attachment:
Change No. 16 to
Technical Specifications

Date of Issuance: OCT 20 1975

ATTACHMENT TO LICENSE AMENDMENT NO. 11
CHANGE NO. 16 TO THE TECHNICAL SPECIFICATIONS
FACILITY OPERATING LICENSE NO. DPR-24
DOCKET NO. 50-266

Replace pages 15.3.8-1, 15.3.8-2, and 15.5.4-1 with the attached revised pages. (No change has been made on page 15.3.8-1.)

15.3.8 REFUELING

Applicability

Applies to operating limitations during refueling operations.

Objective

To ensure that no incident could occur during refueling operations that would affect public health and safety.

Specification

During refueling operations:

- a) The equipment hatch shall be closed and the personnel locks shall be capable of being closed. A temporary third door on the outside of the personnel lock shall be in place whenever both doors in a personnel lock are open (except for initial core loading).
- b) Radiation levels in fuel handling areas, the containment and spent fuel storage pit shall be monitored continuously.
- c) Core subcritical neutron flux shall be continuously monitored by at least two neutron monitors, each with continuous visual indication in the control room and one with audible indication in the containment available whenever core geometry is being changed. When core geometry is not being changed at least one neutron flux monitor shall be in service.
- d) At least one residual heat removal pump shall be in operation.
- e) During reactor vessel head removal and while loading and unloading fuel from the reactor, the minimum boron concentration of 1800 ppm shall be maintained in the primary coolant system.

- f) Direct communication between the control room and the operating floor of the containment shall be available whenever changes in core geometry are taking place.
- g) If any of the specified limiting conditions for refueling are not met, refueling of the reactor shall cease. Work shall be initiated to correct the violated conditions so that the specified limits are met, and no operations which may increase the reactivity of the core shall be made.
- h) No heavy loads will be transported over or placed in either part of the spent fuel pool when spent fuel is stored in that part. (3)
- i) The containment vent and purge system, including the radiation monitors which initiate isolation shall be tested and verified to be operable immediately prior to refueling operations.
- j) A core unload occurrence from either Unit 1 or Unit 2 will not be permitted unless the inventory of spent fuel assemblies in the pool is less than 81 or the time interval from when the reactor is shut down until the first fuel assembly is placed in the pool is 600 hours minimum.

Basis

The equipment and general procedures to be utilized during refueling are discussed in the Final Facility Description and Safety Analysis Report. Detailed instructions, the above specified precautions, and the design of the fuel handling equipment incorporating built-in interlocks and safety features, provide assurance that no incident could occur during the refueling operations that would result in a hazard to public health and safety. (1) Whenever changes are not being made in core geometry one flux monitor is sufficient. This permits maintenance of the instrumentation. Continuous monitoring of radiation levels (b above) and neutron flux provides immediate indication of

15.5.4 FUEL STORAGE

Applicability

Applies to the capacity and storage arrays of new and spent fuel.

Objective

To define those aspects of fuel storage relating to prevention of criticality in fuel storage areas.

Specification

1. The new and spent fuel pit structures are designed to withstand the anticipated earthquake loadings as Class I structures. The spent fuel pit has a stainless steel liner to ensure against loss of water.
2. The new and spent fuel storage racks are designed so that it is impossible to store assemblies in other than the prescribed storage locations. The fuel is stored vertically in an array with sufficient center-to-center distance between assemblies to assure $K_{\text{eff}} \leq 0.90$ even if unborated water were used to fill the pool. One inspection location (Q-3) allows rotation of a fuel assembly for visual inspection, but shall not be used for storage.
3. The spent fuel storage pit shall be filled with borated water at a concentration of at least 1800 ppm boron whenever there is fuel in the pit.

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

WISCONSIN ELECTRIC POWER COMPANY
WISCONSIN MICHIGAN POWER COMPANY

DOCKET NO. 50-301

POINT BEACH NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 14
License No. DPR-27

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Wisconsin Electric Power Company and Wisconsin Michigan Power Company (the licensees) dated March 28, 1975 and Supplement dated June 25, 1975, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations; and
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 3.B. of Facility License No. DPR-27 is hereby amended to read as follows:

"(B) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensees shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 20."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Karl R. Goller

Karl R. Goller, Assistant Director
for Operating Reactors
Division of Reactor Licensing

Attachment:
Change No. 20 to
Technical Specifications

Date of Issuance: **OCT 20 1975**

ATTACHMENT TO LICENSE AMENDMENT NO. 14
CHANGE NO. 20 TO THE TECHNICAL SPECIFICATIONS
FACILITY OPERATING LICENSE NO. DPR-27
DOCKET NO. 50-301

Replace pages 15.3.8-1, 15.3.8-2, and 15.5.4-1 with the attached revised pages. (No change has been made on page 15.3.8-1.)

15.3.8 REFUELING

Applicability

Applies to operating limitations during refueling operations.

Objective

To ensure that no incident could occur during refueling operations that would affect public health and safety.

Specification

During refueling operations:

- a) The equipment hatch shall be closed and the personnel locks shall be capable of being closed. A temporary third door on the outside of the personnel lock shall be in place whenever both doors in a personnel lock are open (except for initial core loading).
- b) Radiation levels in fuel handling areas, the containment and spent fuel storage pit shall be monitored continuously.
- c) Core subcritical neutron flux shall be continuously monitored by at least two neutron monitors, each with continuous visual indication in the control room and one with audible indication in the containment available whenever core geometry is being changed. When core geometry is not being changed at least one neutron flux monitor shall be in service.
- d) At least one residual heat removal pump shall be in operation.
- e) During reactor vessel head removal and while loading and unloading fuel from the reactor, the minimum boron concentration of 1800 ppm shall be maintained in the primary coolant system.

- f) Direct communication between the control room and the operating floor of the containment shall be available whenever changes in core geometry are taking place.
- g) If any of the specified limiting conditions for refueling are not met, refueling of the reactor shall cease. Work shall be initiated to correct the violated conditions so that the specified limits are met, and no operations which may increase the reactivity of the core shall be made.
- h) No heavy loads will be transported over or placed in either part of the spent fuel pool when spent fuel is stored in that part. ⁽³⁾
- i) The containment vent and purge system, including the radiation monitors which initiate isolation shall be tested and verified to be operable immediately prior to refueling operations.
- j) A core unload occurrence from either Unit 1 or Unit 2 will not be permitted unless the inventory of spent fuel assemblies in the pool is less than 81 or the time interval from when the reactor is shut down until the first fuel assembly is placed in the pool is 600 hours minimum.

Basis

The equipment and general procedures to be utilized during refueling are discussed in the Final Facility Description and Safety Analysis Report. Detailed instructions, the above specified precautions, and the design of the fuel handling equipment incorporating built-in interlocks and safety features, provide assurance that no incident could occur during the refueling operations that would result in a hazard to public health and safety. ⁽¹⁾ Whenever changes are not being made in core geometry one flux monitor is sufficient. This permits maintenance of the instrumentation. Continuous monitoring of radiation levels (b above) and neutron flux provides immediate indication of

15.5.4 FUEL STORAGE

Applicability

Applies to the capacity and storage arrays of new and spent fuel.

Objective

To define those aspects of fuel storage relating to prevention of criticality in fuel storage areas.

Specification

1. The new and spent fuel pit structures are designed to withstand the anticipated earthquake loadings as Class I structures. The spent fuel pit has a stainless steel liner to ensure against loss of water.
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3. The spent fuel storage pit shall be filled with borated water at a concentration of at least 1800 ppm boron whenever there is fuel in the pit.

NEGATIVE DECLARATION
REGARDING PROPOSED CHANGES TO THE
TECHNICAL SPECIFICATIONS OF
LICENSES NOS. DPR-24 AND DPR-27
POINT BEACH NUCLEAR PLANT UNITS 1 AND 2
DOCKET NUMBERS 50-266 AND 50-301

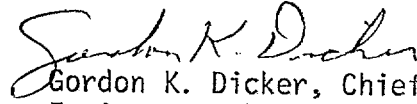
The Nuclear Regulatory Commission (the Commission) has considered the issuance of changes to Technical Specifications 15.3.8 and 15.5.4 of Facility Operating Licenses Nos. DPR-24 and DPR-27 for Point Beach Nuclear Plant Units 1 and 2 in Manitowoc County, Wisconsin. The changes would authorize the licensees, Wisconsin Electric Power Company and Wisconsin Michigan Power Company, to expand the capacity of their spent fuel storage pool. By replacing four storage racks with six new ones, the licensees could increase the storage capacity for irradiated fuel assemblies from 208 to 351 assemblies.

The Commission's Division of Reactor Licensing has appraised the environmental impact of the proposed changes. On the basis of this appraisal, the Commission has concluded that an environmental impact statement for this particular action is not warranted because there will be no environmental impact attributable to the proposed action other than those impacts described in the Commission's Final Environmental Statement of May 1972 concerning the operation of Point Beach Units 1 and 2.

The environmental impact appraisal is available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D.C., and at the Documents Department, Library, University of Wisconsin--Stevens Point, Stevens Point, Wisconsin, 54481.

Dated at Rockville, Maryland, this 10 day of October 1975.

FOR THE NUCLEAR REGULATORY COMMISSION


Gordon K. Dicker, Chief
Environmental Projects Branch 2
Division of Reactor Licensing

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENTS NOS. 11 AND 14 TO LICENSES DPR-24 AND DPR-27

(CHANGES NOS. 16 AND 20 TO THE TECHNICAL SPECIFICATIONS)

WISCONSIN ELECTRIC POWER COMPANY
WISCONSIN MICHIGAN POWER COMPANY

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

DOCKETS NOS. 50-266 AND 50-301

Introduction

By letter dated March 28, 1975 Wisconsin Electric Power Company (WEPCO) requested amendment of Facility Operating Licenses DPR-24 and DPR-27 to allow modification of the spent fuel storage racks at Point Beach Nuclear Plant, Units 1 and 2. The proposed modifications to the spent fuel storage racks would increase the storage capacity from 206 to 399 fuel assemblies. The requested amendments would revise the Technical Specifications to (1) place restrictions on spent fuel storage to limit the decay heat input to the spent fuel pool water and (2) restrict the use of two relocated spent fuel storage racks which would be seismically unrestrained. Per the Nuclear Regulatory Commission's (NRC's) request, the licensee submitted additional information to support the March 28, 1975 proposal, by letter dated June 25, 1975.

Discussion

The existing spent fuel storage facility is shared by both Point Beach Units 1 and 2 and consists of two adjacent seismic Category I spent fuel pools with a total spent fuel storage capacity of 208 fuel assemblies (1 2/3 cores). Of the 208 available locations, two are designated as inspection locations, leaving 206 actual storage locations. The south spent fuel pool has a capacity for permanent storage of 143 fuel assemblies. The north spent fuel pool has a storage capacity of 63 fuel assemblies, which are only used for temporary storage due to spent fuel cask handling restrictions. The existing spent fuel storage racks for both pools are seismic Category I racks having sufficient center-to-center spacing to assure a $k_{eff}^{(1)} \leq 0.90$, assuming unborated water in the pools. The existing spent fuel pool cooling system is designed to maintain the spent fuel pool water below 150°F when 1 2/3 cores are in the pool (1 core = 121 fuel assemblies).

The licensee has proposed that the spent fuel storage capacity be increased from 206 to 399 fuel assemblies. This would be accomplished by (1) replacing the existing storage racks in the south pool with new seismic Category I racks having a smaller center-to-center spacing resulting in a capacity for permanent storage of 288 fuel assemblies in the south pool, and (2) moving two of the south pool's existing storage racks (48 storage locations total) to the north pool to be used for temporary storage of spent fuel. These relocated racks would not be seismically restrained. The existing seismic

(1) k_{eff} is the effective neutron multiplication factor. For $k_{eff} = 1$ the array would be critical.

Category I storage racks (63 storage locations) in the north pool would not be modified, and thus the total temporary storage in the north pool would be 111 fuel assemblies. With 111 temporary storage locations in the north pool and 288 permanent storage locations in the south pool, the total storage capacity would be 399 fuel assemblies.

In addition, the licensee has proposed that the fuel handling equipment (new fuel elevator two transfer carts, and two rod cluster control change fixtures) be used for temporary storage of spent fuel. This would yield an additional five storage locations. The fuel handling equipment is not of seismic Category I design and is currently approved for fuel handling only.

The proposals to store fuel in (1) the fuel handling equipment, (2) the seismically unrestrained fuel storage racks in the north pool and (3) the new seismic Category I storage racks in the south pool are separately evaluated below.

Evaluation

- (1) Proposal to use the fuel handling equipment for storage of spent fuel assemblies:

Use of the fuel handling equipment (i.e., one new fuel elevator, two transfer carts, and two rod cluster control fixtures) would provide 5 additional storage locations. This equipment is currently approved for fuel handling, but it is the NRC staff's position that this equipment must meet seismic Category I design criteria if it is to be used to store fuel. The licensee has proposed the use of the fuel handling equipment for storage of fuel, but has not provided adequate analyses to show that the equipment meets seismic Category I criteria. In the absence of adequate justification the staff does not have sufficient basis to accept the proposal. Therefore, we have determined that the proposed use of the fuel handling equipment for storage of fuel assemblies is not acceptable.

- (2) Proposal to use two unrestrained fuel storage racks in the north pool and associated addition of Technical Specification 15.3.8.k:

WEPCO has proposed the use of two seismically unrestrained fuel storage racks in the north pool which would provide a total of 48 additional storage locations. In conjunction with this proposal, WEPCO has requested changes to Technical Specification 15.5.4.1 which would describe the unrestrained racks. In addition, WEPCO has proposed an additional Technical Specification 15.3.8.k, which would permit the use of these racks only in the case of a temporary complete core unload and if no seismic Category I storage locations are available.

To support this proposal, the licensee has provided a discussion of the probability of a seismic event (of sufficient magnitude to cause damage) occurring at the same time that fuel assemblies are stored in these

unrestrained storage racks. Although this discussion concludes that the probability for such an event is low, we cannot accept the conclusion as a basis for the design of these fuel storage racks. It is our position that fuel storage racks must meet Seismic Category I design criteria, and thus we have concluded that the use of the seismically unrestrained racks in the north pool is not acceptable. Therefore, we have also determined that the proposed Technical Specification 15.3.8.k, which is related to the use of these storage racks, and the proposed changes to Technical Specification 15.5.4.1, which would incorporate a description of the racks, are not acceptable.

- (3) Proposal to use new Seismic Category I fuel storage racks in the south pool and associated changes to the Technical Specifications:

The proposed seismic Category I fuel storage racks in the south pool would provide 288 storage locations. This is twice the capacity of the existing south pool racks and would be achieved by a reduced center-to-center spacing of the fuel assemblies in the racks. Each safety consideration associated with this modification is separately evaluated below.

(a) Spent Fuel Storage Rack Installation Considerations

1. Accident Considerations

In preparation for the installation of the new seismic Category I spent fuel storage racks, the licensee has removed all spent fuel assemblies from the south pool. This action precludes the possibility of any damage to spent fuel elements which could result from a postulated construction accident (e.g., dropping a fuel storage rack onto spent fuel assemblies) and thus there is no potential for the release of radioactive fission products. Consequently, we have determined that the installation of the new seismic Category I storage racks in the south pool could be accomplished without creating the possibility for an accident or malfunction of a different type than any evaluated previously and that neither the probability nor the consequences of an accident would be increased and therefore, is acceptable.

2. Personnel Radiation Exposures

Since all fuel assemblies have been removed from the south pool, the direct radiation levels would be approximately at normal background levels for the area around the spent fuel storage pool. The installation of the spent fuel racks would be accomplished by unbolting the existing racks and removing them from the pool, lowering the new racks into the pool and bolting them into place. Since the spent fuel storage pool water level would be maintained at normal levels during these operations a diver will be utilized. Consequently, the bulk of the radiation exposure which would be experienced by personnel would be those resulting from operations which must be performed by the diver in the south pool (i.e., exposure due to low level residual radioactivity of the pool water) and the personnel involved in the decontamination process of the old spent fuel storage racks after their removal from the south pool. In view of the radiation protection procedures which are routinely utilized by the licensee, we consider these types of operations

to be relatively minor from a radiation exposure standpoint. Therefore we have concluded that personnel performing the installation of the spent fuel racks would be exposed to radiation levels that are acceptable.

(b) Provisions to Protect Against Spent Fuel Pool Criticality:

The center-to-center spacing of assemblies in the new racks would be reduced from 20 inches to 15.5 inches. This would tend to increase the effective multiplication factor k_{eff} of the array; thus, an analysis of the proposed fuel storage configuration and reactivity consideration were performed by the licensee, and independently by us, to determine the margin to criticality afforded by the proposed design.

In our independent calculations, credit was taken for the nuclear poison provided in the full-length corner angles of the storage modules. Assumptions used in our calculations included:

1. Unirradiated fuel of 3.5 w/o U-235 and 95% Theoretical Density
2. Moderation by pure water at 120°F.
3. Infinite array of fuel assemblies.

The following uncertainties were included:

1. Computational uncertainty based on comparison with critical experiments.
2. Manufacturing tolerances on assembly-to-assembly spacing and on rack-to-rack spacing.
3. Uncertainty in inherent absorbing properties of stainless steel channels.

All of the uncertainties were combined in a "worst case" analysis which yielded a value for k_{eff} of 0.876. This value is well below the Point Beach Technical Specification 15.5.4.2 limit of 0.90 and far below our acceptance criterion of 0.95. In addition, analyses were performed by the licensee, and independently by us, which show that even for conditions of optimum neutron moderation⁽²⁾ a k_{eff} of only 0.93 would result. This value is also below our acceptance criterion of 0.95 and, consequently, is satisfactory.

(2) Optimum neutron moderation occurs at a water density of approximately 0.1 gm/cc and is extremely difficult, if not impossible, to physically achieve.

Based on our review we have determined that the design of the proposed spent fuel storage racks would preclude criticality for all moderating conditions, and thus is acceptable.

(c) Rack Structural Design:

The proposed spent fuel storage racks would be of seismic Category I design. Based on our review, we have concluded that the seismic Category I design criteria would be satisfied, and thus the rack structural design is acceptable.

(d) Pool Structural Design:

The proposed increase in fuel storage would result in only a 2.1% increase in the total weight which must be supported by the existing pile system. This pile system also provides resistance to seismic shear forces. We consider the increase in weight to be within the static supporting capacity of the existing pile system. Therefore we have concluded that sufficient resistance to seismic shear forces is provided. Moreover, we have concluded that the existing pool design is structurally adequate and meets seismic Category I design criteria; therefore, the pool structure is acceptable under the proposed new loading.

(e) Decay Heat Removal Capability and Addition of Technical Specification 15.3.8.j:

The increased storage capacity in the south pool (288 storage locations), coupled with the existing capacity in the north pool (63 storage locations), if fully utilized at one time, (351 storage locations) could result in a decay heat input to the pool water in excess of the heat removal capability of the existing spent fuel cooling system. This is because the current capacity of the existing spent fuel cooling system, as stated in the Point Beach Final Facility Description and Safety Analysis Report (FFDSAR), is designed to keep the spent fuel pool temperature at 150°F, assuming approximately 1 2/3 cores in the pool following a full core discharge. To accommodate the possibility of an increased heat load, the installation of an additional cooling system is planned for the future, but in the interim, the licensee has proposed an additional Technical Specification 15.3.8.j which would place restrictions on spent fuel storage to limit the decay heat input to the spent fuel pool water.

The amount of decay heat generated by each fuel assembly is a decreasing function of the elapsed time after reactor shutdown. Therefore, the decay heat input into the spent fuel pool water is also a function of the elapsed time after shutdown of each fuel assembly as well as the number of fuel assemblies stored in the pool. Consequently, the decay heat input to the spent fuel pool water can be limited in two ways: (1) by delaying the placement of the spent fuel assemblies in the pool and (2) by limiting the number of spent fuel assemblies in the pool. The proposed Technical Specification 15.3.8.j would utilize both of these methods to limit the decay heat input to the spent fuel pool water to prevent the spent fuel water temperature from exceeding 150°F. Based on our review of the decay heat generated by the spent fuel and the heat removal capacity of the spent fuel cooling system, we have concluded that the proposed Technical Specification 15.3.8.j is acceptable because it would ensure that the spent fuel pool water temperature would not exceed 150°F.

(f) Spent Fuel Pool Heat-Up Time:

In the event of a loss of the spent fuel pool cooling system, the temperature of the water would tend to increase due to the decay heat input from the spent fuel elements. The licensee has performed an analysis of the spent fuel pool heat-up time. The results of the analysis show that the minimum time to reach 200°F from a pool water temperature of 150°F is 11.4 hours under the most adverse conditions. We agree with these findings. The component cooling water system, the plant makeup water system or the plant raw water storage tanks can be used for cooling or makeup in the event of a spent fuel cooling system failure. Thus, we conclude that 11.4 hours is sufficient time for the operator to accomplish a repair or hook-up additional cooling and, therefore, the calculated spent fuel pool heat-up time is acceptable.

(g) Postulated Spent Fuel Cask Drop Accident

An analysis of the consequences of a postulated spent fuel cask drop accident was submitted by the licensee by letters dated May 21, 1974 and May 15, 1975 in response to a NRC generic request of February 27, 1974. NRC review of the spent fuel cask drop analysis for Point Beach, Units 1 and 2 is scheduled for completion in early 1976.

Due to the current shortage of offsite spent fuel storage space and spent fuel reprocessing capability, the licensee does not anticipate shipping spent fuel offsite for approximately three years. Since the spent fuel cask is only used when shipping spent fuel offsite, it will not be used for the same length of time. Subsequent to the completion of the proposed modification and prior to the use of the spent fuel cask, the NRC will determine the acceptability of the spent fuel cask drop analysis. Based on this fact, we have determined that a completed spent fuel cask drop accident analysis is not a prerequisite for our approval of the proposed modification, and thus we have concluded that it would be acceptable for the proposed modification to be accomplished at this time.

(h) Direct Radiation:

We have independently calculated the direct radiation levels which could be expected as a result of the proposed storage capacity increase. The calculation was performed conservatively assuming 399 irradiated fuel assemblies in storage. The results of our independent calculations show that the dose rate at the pool surface would be negligible because of the approximately 26 feet of water shielding over the pool. It is our conclusion that the increase in dosages from direct radiation from the spent fuel to individuals both on and offsite would be negligible. Therefore the direct radiation levels that would result from the proposed increase in spent fuel storage capacity are acceptable.

(i) Release of Radioactive Materials:

Radioactive materials can be released to the fuel pool water from fuel elements which have cladding defects. Non-volatile material would remain in the water while gases would be released to the atmosphere. The proposed increase in fuel storage capacity would mean that spent fuel assemblies would remain in the pool for a longer period of time. Due to the length of a core cycle (approximately one year) the radioactive material in the spent fuel stored in the pool would decay significantly by the time recently spent fuel were placed in the pool as a result of a refueling operation. Consequently, the total inventory of radioactive material would not be increased in direct proportion to the number of proposed additional storage locations. This is because the short-lived isotopes will have decayed to negligible amounts by the time recently spent fuel is placed in the pool. Therefore the increase in radioactive material which would result from the increase in storage capacity would essentially consist of long-lived isotopes only.

The only long-lived radioactive noble gas isotope of significance is krypton-85. We have independently calculated the increase in the total inventory of krypton-85. Conservatively assuming 0.25% of the fuel to have defective cladding, we concluded that the increase in the amount of krypton-85 that could potentially be released was negligible compared to the total annual quantity of all noble gases released from the plant.

Long-lived non-volatile fission products and corrosion products that enter the spent fuel pool water would be removed by the fuel pool cleanup systems. Thus the quantity of radioactive materials accumulated by the fuel pool filter and demineralizer would be increased. This material would be disposed of as solid waste. These wastes are a small fraction of the total quantity of solid wastes shipped from the site, so that the overall impact on solid waste shipments would be negligible.

Based on the considerations discussed above, we have concluded that the proposed change would have a negligible effect on the quantity of radioactive material released from the site and therefore is acceptable.

(j) Associated Change to Technical Specification 15.5.4.2:

The existing Technical Specification 15.5.4.2 describes two inspection locations. One inspection location (Q-3) is located in the north pool and one inspection location (Q-26) is located in the south pool. These locations allow rotation of a fuel assembly for visual inspection and are not required for safety. The proposed installation of new racks in the south pool does not include an inspection location. Therefore, the (Q-26) location would be eliminated while the inspection location (Q-3) would still be available in the north pool. The proposed change to Technical Specification 15.5.4.2 would reflect this modification. Based on our review of the proposed racks in the south pool, we have concluded that the proposed change to Technical Specification 15.5.4.2 would not affect safety, and therefore is acceptable.

Summary

Based on our review we have determined that the proposed spent fuel storage racks for the south pool are acceptable because: (i) the design would preclude criticality for any moderating condition and would conform to seismic Category I design criteria, (ii) the additional weight of the spent fuel stored in these racks would be within the structural design criteria of the spent fuel pools, (iii) the increased radiation doses both onsite and offsite would be negligible, and (iv) the existing spent fuel cooling system, in conjunction with the proposed Technical Specification 15.5.8.j, would provide adequate assurance that the FFDSAR pool water temperature limit of 150°F would not be exceeded. In addition, we have determined that the proposed change to Technical Specification 15.5.4.2 is acceptable.

However, we have also determined that WEPCO's proposal to store fuel in two seismically unrestrained storage racks (48 locations) in the north pool and the non-seismic fuel handling equipment (5 locations) is not acceptable.

Therefore, the total proposed spent fuel storage capacity, which we have found to be acceptable, is the 288 storage locations in the south pool. The 288 storage locations in the south pool plus the existing 63 storage locations in the north pool would yield a total Point Beach Units 1 and 2 spent fuel storage capacity of 351 fuel assemblies.

Conclusion

We have concluded, based on the considerations discussed above, that:

- (1) there is reasonable assurance that the health and safety of the public

will not be endangered by operation in the proposed manner as modified by the staff, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: **OCT 20 1975**

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKETS NOS. 50-266 AND 50-501

WISCONSIN ELECTRIC POWER COMPANY
WISCONSIN MICHIGAN POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

Notice is hereby given that the U.S. Nuclear Regulatory Commission (the Commission) has issued Amendments Nos. 11 and 14 to Facility Operating Licenses Nos. DPR-24 and DPR-27 issued to Wisconsin Electric Power Company and Wisconsin Michigan Power Company, which revised Technical Specifications for operation of the Point Beach Nuclear Plant Units Nos. 1 and 2, located in the town of Two Creeks, Manitowoc County, Wisconsin.

The amendments allow modification of the spent fuel storage racks and modify the Technical Specifications to place restrictions on spent fuel storage to limit the decay heat input to the spent fuel pool water, and restrict the use of two relocated spent fuel storage racks which would be seismically unrestrained.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Notice of Proposed Issuance of Amendments to Facility Operating Licenses in connection with this action was published in the FEDERAL REGISTER on May 20, 1975 (40 F.R. 22025). No request for a hearing or petition for leave to intervene was filed following notice of the proposed action.

For further details with respect to this action, see (1) the application for amendments dated March 28, 1975 and Supplement dated June 25, 1975, (2) Amendments Nos. 11 and 14 to Licenses Nos. DPR-24 and DPR-27, with Changes Nos. 16 and 20, (3) the Commission's related Safety Evaluation, (4) the Negative Declaration, and (5) the Environmental Impact Appraisal. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Document Department, University of Wisconsin - Stevens Point Library, Stevens Point, Wisconsin 54481.

A copy of items (2), (3), (4), and (5) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Reactor Licensing.

Dated at Bethesda, Maryland, this day of , 1975.

FOR THE NUCLEAR REGULATORY COMMISSION

Walter A. Paulson
Walter A. Paulson, Acting Chief
Operating Reactors Branch #3
Division of Reactor Licensing

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

ENVIRONMENTAL IMPACT APPRAISAL BY THE DIVISION OF REACTOR LICENSING

SUPPORTING AMENDMENT NOS. 11 AND 14 TO DPR-24 AND DPR-27

CHANGE NOS. 16 AND 20 TO THE TECHNICAL SPECIFICATIONS

WISCONSIN ELECTRIC POWER COMPANY AND

WISCONSIN MICHIGAN POWER COMPANY

ENVIRONMENTAL IMPACT APPRAISAL

1. Description of Proposed Action

By letter dated March 28, 1975, Wisconsin Electric Power Company and Wisconsin Michigan Power Company (licensees in the above-captioned dockets) requested an amendment to Facility Operating Licenses DPR-24 and DPR-27 for the Point Beach Nuclear Plant, Units 1 and 2. This request was for the Nuclear Regulatory Commission (the Commission) to change Technical Specifications 15.3.8 and 15.5.4 to permit fabrication and installation of new racks for storing spent reactor fuel. The increased storage capacity proposed was from 208 to 399 spent fuel assemblies. The licensees submitted additional information by letter dated June 25, 1975 in response to a June 11 request by the Commission's staff.

The spent fuel storage pit is designed for the underwater storage of spent fuel assemblies and control rods after their removal from the reactor. This spent fuel storage pit serves both reactor units at Point Beach and consists of a south pool having six racks for storing irradiated fuel assemblies and a north pool with four racks. In combination, these two adjacent pools currently can store 208 spent fuel assemblies. The south pool can store 143 fuel assemblies; the north pool can store 63. Two additional storage locations have been kept open to facilitate inspection of the fuel assemblies thereby making for a total of 208 possible locations.

The proposed modification included removal of four south pool storage racks, relocation of two south pool racks to the north pool, and installation of six new racks (with twice the storage capacity) in the south pool. As a result of its safety evaluation, the Commission's staff determined that the proposed relocation of two storage racks (48 storage locations) in the north pool would not be acceptable due to the lack of seismic restraints. Therefore this discussion concerns only the proposal to remove the present four fuel storage racks from



the south pool and to replace them with the six racks having more storage capacity. These six new racks (288 storage locations) plus the existing storage capacity in the north pool (63 storage locations) would accommodate a total of 351 spent fuel assemblies.

The new racks proposed for the south pool would be similar to the original racks, consisting of fuel assembly storage modules, structural steel, supporting feet, and two types of lateral support. However, the new racks would have more storage capacity. Each new rack would have 48 assembly modules with 15.5-inch center-to-center spacings between modules, whereas the original racks have 24 modules with 20-inch spacings. Each new rack would be approximately 169.5 inches high by 123 inches wide and 92 inches deep. These racks would be made of stainless steel and would weigh approximately 15,000 pounds each when empty.

The proposed modification would not change the physical size of the spent fuel pools in any manner. The proposal is limited to replacing existing storage racks with racks which would make more efficient use of the space already available for storage of spent fuel.

The capacity for storing 208 assemblies was designed for two regions of spent fuel plus a full core from either of the reactors in case unloading of an entire core is necessary. The full core of each reactor is made up of 121 fuel assemblies grouped into three regions. Two regions contain 40 assemblies apiece and the third contains 41 assemblies. When a reactor is refueled, a region or one-third of the core is removed to the spent fuel pool and a new region of fresh fuel is added to the core.

The spent fuel pool capacity at Point Beach was determined on the basis that spent fuel would be chemically reprocessed after use in the reactors. The assumption was that a region of spent fuel would spend less than one year in the storage pool because the fuel then would be removed periodically for reprocessing.

Currently, spent fuel is not being reprocessed on a commercial basis in the United States. The Nuclear Fuel Services (NFS) plant in New York was shut down in 1972 for alterations and expansion. The Allied General Nuclear Services (AGNS) proposed plant is under construction in South Carolina, and this facility is not licensed to operate. The General Electric Company's (GE) Midwest Fuel Recovery Plant in Illinois is in a decommissioned condition.

Although no plants are licensed for reprocessing fuel, the GE and NFS facilities are licensed for storing spent fuel and applications have been filed for permission to expand these facilities. Also, AGNS has applied for a license to receive and store irradiated fuel assemblies prior to a decision on the licensing action relating to the separations facility. Construction of the AGNS receiving and storage station itself is complete.

The Commission's staff projects that by the end of calendar year 1975, the GE storage facility will have no unfilled storage capacity and the NFS facility will have space available for 85 metric tons of uranium. If its pending license application is approved, the AGNS facility could have licensed storage space for 400 metric tons of uranium in early 1976. The following table presents the staff's estimate of available (unfilled) storage capacity at the end of calendar years 1975, 1976, and 1977, if pending license applications are approved.

Space Availability In Metric Tons Of Uranium

	<u>1975</u>	<u>1976</u>	<u>1977</u>
GE	0	525	275
NFS	85	80	0
AGNS	0	260	40

The licensees had originally arranged with GE for reprocessing of spent fuel. The delay in reprocessing that developed would have caused the spent fuel discharged from Point Beach to exceed the plant's storage capacity in 1974. However, the licensees were able to ship 44 fuel assemblies to NFS in July, August, and September 1974. This action provided enough spent fuel storage space to enable refueling of Unit 2 in November 1974.

During 1975, the licensee sent another 76 spent fuel assemblies to NFS and 34 assemblies to GE for storage. These shipments brought the spent fuel at Point Beach to a level such that the old racks could be removed and the new ones installed.

If no corrective action is taken, the present capacity for storing 208 assemblies at Point Beach would be filled during the 1976 refueling. By increasing the capacity as proposed, the spent fuel storage racks will not be filled until the fall of 1978. The licensees estimate that this extension would be long enough for solutions to be worked out for storing spent fuel after 1978.

2. Environmental Impacts of Proposed Action

On September 16, 1975, the Commission announced (40 FR 42801) its intent to prepare a generic environmental impact statement on handling and storage of spent fuel from light water power reactors. In this notice, the Commission also announced its conclusion that it would not be in the public interest to defer licensing actions intended to ameliorate a possible shortage of spent fuel storage capacity pending completion of the generic environmental impact statement. The Commission directed that in the consideration of any such proposed licensing action, the following five specific factors should be applied, balanced, and weighed in the context of the required environmental statement or appraisal.

- a. Is it likely that the licensing action here proposed would have a utility that is independent of the utility of other licensing actions designed to ameliorate a possible shortage of spent fuel capacity?

The proposed licensing action would have independent utility because it would enable the licensees to concurrently unload and store a complete core from each of the two Point Beach reactor units. This capability would give the licensees greater operating flexibility which would be desirable even if adequate offsite storage facilities are now or hereafter become available to the licensees.

- b. Is it likely that the taking of the action here proposed prior to the preparation of the generic statement would constitute a commitment of resources that would tend to significantly foreclose the alternatives available with respect to any other licensing actions designed to ameliorate a possible shortage of spent fuel storage capacity?

It is not likely that the taking of the licensing action here proposed would constitute a commitment of resources that would tend to significantly foreclose the alternatives available with respect to any other individual licensing action designed to ameliorate a possible shortage of spent fuel storage capacity. The time frame under consideration is two years, the staff's estimate of the time necessary to complete the generic environmental statement. The action here proposed will not have any significant effect on whether similar actions are or should be taken at other nuclear reactors since it will not affect either the need for or availability of storage facilities at other

nuclear reactors. Nor will the added capacity here significantly affect the need for the total additional storage space presently planned at reprocessing facilities for which licensing actions are pending. The addition of fuel storage capacity considered here at Point Beach (approximately 72 metric tons of uranium) is less than ten percent of the total storage capacity proposed to be added or put into use within the next two years at the reprocessing facilities of GE, NFS, and AGNS (1130 metric tons of uranium). The modification at Point Beach would postpone the date when it would be necessary to ship spent fuel offsite. However, since fuel would continue to be used at the present rate, the proposed action would not change in any way the total quantity of spent fuel that would be placed into or removed from the storage pools.

The 90,000 pounds of stainless steel which would be needed for fabricating the new storage racks would not lead to any shortage of materials for other contemplated fuel storage facilities. No other resources need be allocated because the dimensions or physical makeup of the spent fuel pools at Point Beach will not be changed. No additional allocation of space would be made; the space now used would be used more efficiently by reducing the spacings among fuel assemblies.

The proposed action would allow for continued use of nuclear fuel, but it would not lead to increased use. The spent fuel stored at Point Beach would be available for future reprocessing when such capability becomes available.

- c. Can the environmental impacts associated with the licensing action here proposed be adequately addressed within the context of the present application without overlooking any cumulative environmental impacts?

The licensees have presented the need for additional storage capacity solely on the basis of this plant. Because the additional capacity is for this site alone and for these licensees only, all the environmental impacts can be assessed within the context of this application.

The staff evaluated the releases of radioactive material that would result if an additional 143 spent fuel assemblies were stored for an additional two years. If the proposed action were approved and implemented, spent fuel could be loaded into the storage pit for three years before its capacity were filled. However, the radioactive material released during the first year

of storage is not attributable to the proposed action since this action only extends the period of time during which the spent fuel may remain in storage. It is significant that most of the radioactive decay occurs during the first year in the spent fuel pit. The environmental impacts occurring during the first year of storage were evaluated in the Point Beach Final Environmental Statement issued May 1972.

The only significant radioactive noble gas isotope remaining in spent fuel after storage for one year would be krypton-85, since total short-lived noble gases would have decayed to a level of less than one curie. The staff estimates that the amount of krypton-85 that potentially could be released from the 143 assemblies during the three-year storage period is 110 curies per year which is a small fraction of all noble gases released from Point Beach (5,800 curies in 1973).

Iodine-131 releases will not be increased significantly by the increases in fuel storage capacity because the additional spent fuel would have been stored for a year or more. During this time, the Iodine-131 in the fuel would have decayed to a small fraction of a curie.

The principal effect due to nonvolatile radioactive materials entering the pool would be an increase in materials accumulating on the fuel pool filter and demineralizer which are disposed of as solid waste. The quantity and the curie content of the solid wastes from the fuel pool cleanup system would increase by approximately 90 percent. However, these wastes amount to approximately one percent of the total quantity of solid wastes shipped from the plant.

- d. Have all technical issues which have arisen during the review of this application been resolved within that context?

The accompanying safety evaluation report points out that all questions concerning health and safety have been answered.

- e. Would a deferral or severe restriction on this licensing action result in substantial harm to the public interest?

Shipping spent reactor fuel from Point Beach to storage facilities at reprocessing plants or to a storage pool at another nuclear reactor are alternatives to the proposed action. The licensees currently have a low inventory of spent fuel. Therefore, without shipping any fuel offsite, the licensees would not fill their present storage capacity until fall 1976. In addition, the Point Beach plant could continue to operate during 1977 with a full spent fuel pool. Before coming to the point of having a region of fuel to discharge and no place to store it temporarily onsite, the licensees probably could arrange to store more spent fuel at the NFS facility. If none of the pending commercial storage license applications are approved, the Commission's staff estimates that the NFS facility nevertheless would have licensed space for 85 metric tons of uranium at the end of calendar year 1975. However, this facility would be filled to capacity by the end of 1976. If any of the license applications for GE, NFS, or AGNS is approved during 1976 or early 1977, the likelihood increases that the Point Beach licensees could store spent fuel onsite until storage offsite were no longer in short supply.

The Point Beach licensees could arrange for storage of spent fuel at a reprocessing plant before they are faced with the necessity of having a region of fuel to discharge and no onsite storage space remaining; however, there are drawbacks to this approach. The spent fuel from Point Beach stored at a reprocessing plant could preempt the use of space by another utility which might have no other storage option available. In addition, this offsite storage would be more expensive than the proposed action.

The licensees estimate it would cost \$700,000 to fabricate and install the new storage racks thereby providing locations for storing an additional 143 fuel assemblies. For this expense the licensees could store spent fuel onsite until fall 1978 before the storage pools are full. The extension of time provided would amount to two years and the expense would have to be borne only once. To store spent fuel at commercial facilities such as those at GE or NFS would cost approximately \$4,000 per assembly per year. A commercial facility would charge approximately \$1.1 million to store for two years the additional 143 assemblies which could be stored in the proposed racks.

The alternative of storing spent fuel in the storage pool of another nuclear reactor also compares poorly with the proposed action. The cost probably would be comparable to the cost of storing at a commercial site and the licensees would be using storage space which the receiving reactor might need later. The handling and transporting necessary to move fuel to another reactor facility could be avoided if additional storage at reprocessing facilities were licensed during the additional storage period at Point Beach.

The alternatives described above do not offer the operating flexibility of the proposed action of being able to unload two reactors concurrently nor could they be completed as rapidly as the proposed action. Either of these alternatives would be more expensive than the proposed action and either might preempt storage space needed by another utility. Accordingly, deferral or severe restriction of the action here proposed would result in substantial harm to the public interest.

3. Conclusion and Basis for Negative Declaration

Having applied, weighed, and balanced the five specific factor required by the Nuclear Regulatory Commission (40 FR 42801) the staff finds that any environmental consequences that might reasonably be associated with the proposed action would result in no significant change in the environmental impact as analyzed and set forth in the Final Environmental Statement, issued May 1972, concerning operation of the Point Beach Nuclear Plant, Units 1 and 2. The Commission has concluded that no environmental impact statement for the proposed action need be prepared and that, pursuant to 10 CFR 51.5(c), a negative declaration to this effect is appropriate.

DATED: OCT 20 1975