APRIL 4 1979

Docket Nos.: 50-266
and 50-301

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

Dear Mr. Burstein,

The Commission has issued the enclosed Amendments No. 35 and 41 to Facility Operating Licenses No. DPR-24 and DPR-27 for the Point Beach Nuclear Plant, Unit Nos. 1 and 2. The amendments consist of changes to the operating licenses and appended Technical Specifications in response to your application for amendments dated March 21, 1978 as supplemented and amended June 14, July 19, September 29 and October 10, 1978; January 3, 29 and 30, and February 7, 1979.

The amendments authorize the installation and use of modified spent fuel storage racks in the spent fuel pool which increase the capacity for spent fuel storage from 351 assemblies to 1502 assemblies.

Copies of the related Safety Evaluation, Environmental Impact Appraisal, and Notice of Issuance and Negative Declaration are also enclosed.

Sincerely,

Original Signed By

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Const ccp

Enclosures:
1. Amendment No. 35 to DPR-24
2. Amendment No. 41 to DPR-27
3. Safety Evaluation
4. Environmental Impact Appraisal
5. Notice of Issuance & Negative Declaration

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cc w/enclosures: See next page

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DATE	3/26/79	3/23/79 3/26/79	3/26/79	3/16/79	3/27/79	4/2/79

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

April 4, 1979

Docket Nos.: 50-266
and 50-301

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

Dear Mr. Burstein,

The Commission has issued the enclosed Amendments No. 35 and 41 to Facility Operating Licenses No. DPR-24 and DPR-27 for the Point Beach Nuclear Plant, Unit Nos. 1 and 2. The amendments consist of changes to the operating licenses and appended Technical Specifications in response to your application for amendments dated March 21, 1978 as supplemented and amended June 14, July 19, September 29 and October 10, 1978; January 3, 29 and 30, and February 7, 1979.

The amendments authorize the installation and use of modified spent fuel storage racks in the spent fuel pool which increase the capacity for spent fuel storage from 351 assemblies to 1502 assemblies.

Copies of the related Safety Evaluation, Environmental Impact Appraisal, and Notice of Issuance and Negative Declaration are also enclosed.

Sincerely,

A. Schwencer

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Enclosures:
1. Amendment No. 35 to DPR-24
2. Amendment No. 41 to DPR-27
3. Safety Evaluation
4. Environmental Impact Appraisal
5. Notice of Issuance & Negative
   Declaration

cc w/enclosures: See next page

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

WISCONSIN ELECTRIC POWER COMPANY

DOCKET NO. 50-266

POINT BEACH NUCLEAR PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 35
License No. DPR-24

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Wisconsin Electric Power Company (the licensee) dated March 21, 1978, as supplemented and amended June 14, July 19, September 29 and October 10, 1978; January 3, 29 and 30, and February 7, 1979 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;

   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; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 3.B is hereby amended to read as follows:

"(B) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 35, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications."

The license is further amended by the addition of new paragraph 3.E to read as follows:

"E. Spent Fuel Pool Modification

The licensee is authorized to modify the spent fuel storage pool to increase its storage capacity from 351 to 1502 assemblies as described in licensee's application dated March 21, 1978, as supplemented and amended. In the event that the on-site verification check for poison material in the poison assemblies discloses any missing boron plates, the NRC shall be notified and an on-site test on every poison assembly shall be performed."

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

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis L. Ziemann

Dennis L. Ziemann, Acting Assistant Director for Systems and Projects
Division of Operating Reactors

Attachment:
Changes to the Technical Specifications

Date of Issuance: April 4, 1979

ATTACHMENT TO LICENSE AMENDMENT NO. 35

FACILITY OPERATING LICENSE NO. DPR-24

DOCKET NO. 50-266

Revise Appendix A as follows:

Remove the following pages and insert the following revised pages:

Remove	Insert
15.3.8-1	15.3.8-1
15.3.8-2	15.3.8-2
15.3.8-3	15.3.8-3
15.3.8-4	15.3.8-4
-	15.3.8-5
-	15.3.8-6
15.4.14-1	15.4.14-1
15.4.14-2	-
15.5.4-1	15.5.4-1
15.6.9-10	15.6.9-10

15.3.8 REFUELING AND SPENT FUEL ASSEMBLY STORAGE

Applicability:

Applies to operating limitations during refueling operations and to operating limitations concerning the movement of heavy loads over or into the spent fuel storage pools.

Objective:

To ensure that no incident could occur during refueling operations, or during auxiliary building crane operations that would affect public health and safety.

Specifications:

A. During refueling operations:

1. 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).
2. Radiation levels in fuel handling areas, the containment and spent fuel storage pool shall be monitored continuously.
3. 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.
4. At least one residual heat removal pump shall be in operation.
5. During reactor vessel head removal and while loading and unloading fuel from the reactor, a minimum boron concentration of 1800 ppm shall be maintained in the primary coolant system.

6. Direct communication between the control room and the operating floor of the containment shall be available whenever changes in core geometry are taking place.

7. 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.

8. 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.

B. Limitations on Load Movements Over a Spent Fuel Pool*

1. One ton shall be the maximum load allowed over either the north half or south half of the spent fuel storage pool when spent fuel which has been subcritical for less than one year is stored in that half of the spent fuel pool.

2. Auxiliary building crane bridge and trolley positive acting limit switches shall be installed to prevent motion of the main crane hook over that half of the spent fuel pool which contains stored spent fuel which has been subcritical for less than one year.

3. When transporting loads exceeding one ton over a pool half which has fuel stored therein, the rigging between the transported load and the crane hook shall consist of either a single rigging device rated at six times the static and dynamic loads or dual rigging devices

* These are interim requirements pending completion and implementation of NRC Generic Task A-36 "Control of Heavy Loads Near Spent Fuel."

each rated at three times the static and dynamic loads. The maximum permissible crane load shall be 39 tons for the main hook and six tons for the auxiliary hook.

4. Whenever possible, loads shall be carried over or placed in the half of the spent fuel pool that does not have any spent fuel assemblies stored therein.

5. Loads not exceeding 52,500 pounds may be carried over either pool half (or placed in the north half of the spent fuel pool) provided that that half of the pool contains no spent fuel assemblies.

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 (A2 above) and neutron flux provides immediate indication of an unsafe condition. The residual heat pump is used to maintain a uniform boron concentration.

The shutdown margin indicated in Part A5 will keep the core subcritical, even if all control rods were withdrawn from the core. During refueling, the reactor refueling cavity is filled with approximately 275,000 gallons of borated water. The boron concentration of this water is sufficient to maintain the reactor subcritical approximately by 10% $\Delta k/k$ in the cold condition with all rods inserted, and will also maintain the core subcritical even if no control rods were inserted into the reactor.[2] Periodic checks of refueling water boron concentration insure that proper shutdown margin is maintained. Part A6 allows the control room operator to inform the manipulator operator of any impending unsafe condition detected from the main control board indicators during fuel movement.

During the refueling operation a substantial number of station personnel and perhaps some regulatory people will be in the containment. The requirements are to prevent an unsafe amount of radioactivity from escaping to the environment in the case of a refueling accident, and also to allow safe avenues of escape for the personnel inside the containment as required by the Wisconsin Department of Industry, Labor and Human Relations. To provide for these requirements, the personnel locks (both doors) are open for the normal refueling operations with a third temporary door which opens outward installed across the outside end of the personnel lock.[3] This hollow metal third door is equipped with weather stripping and an automatic door closer to minimize the exchange of inside air with the outside atmosphere under the very small differential pressures expected while in the refueling condition. Upon sounding of the containment evacuation alarm, all personnel will exit through the temporary door(s) and then all personnel lock doors shall be closed. As soon as possible, the fuel transfer gate value shall be closed to back up the 30 foot water seal to prevent escape of fission products.

The spent fuel storage pool at the Point Beach Nuclear Plant consists of a single pool with a four foot thick reinforced concrete divider wall which separates the pool into a north half and south half. The divider wall is notched to a point sixteen feet above the pool floor to allow transfer of assemblies from one half of the pool to the other.

In order to preclude the possibility of dropping a heavy load onto spent fuel assemblies stored in the spent fuel pool and causing a release or radioacivity which could affect the public health and safety, a number of precautionary measures have been incorporated into these limiting conditions for operation. No loads are permitted to be carried over freshly discharged spent fuel assemblies other than single spent fuel assemblies, handling tools and items weighing less than 2000 pounds. Limit switches are installed to prevent motion of the auxiliary building crane main hook over the half of the spent fuel pool which contains freshly discharged fuel.

When it is possible to keep all the discharged spent fuel assemblies in either the north and south half of the pool all heavy load transfers will be routed across the pool half which contains no stored fuel. When this is no longer possible, heavy loads will only be permitted to be carried over that half of the storage pool which contains spent fuel that has been subcritical for more than one year. The off site consequences of damaging such fuel assemblies are greatly reduced as the xenon and iodine fission product gases have decayed to essentially zero after one year.

In addition, the maximum load limits on the auxiliary building crane hooks have been selected such that a minimum safety factor of 10 exists between the permitted maximum load and the crane hook name plate rating times the minimum design safety factor. This results in a 39 ton limit on the 130 ton main hook and a six ton limit on the 20 ton auxiliary hook. The rigging between the auxiliary building crane hooks and the transported load must also be shown to have a safety factor of at least six over the static and dynamic loads if a single device is used and each rigging device must have a safety factor of three times the static and dynamic loads if dual straps, slings, or rigging devices are used. Dynamic loads include braking, accelerating, and slack loads.

Pending additional analysis which demonstrates that dropping a spent fuel shipping cask into the cask loading area of the north spent fuel pool will not cause an uncontrollable loss of spent fuel pool coolant or installation of the redundant crane hoisting mechanism described in Licensee's submittal of March 21, 1978, as amended; this specification (B3) precludes placing a spent fuel shipping cask into the cask loading area of the north pool when spent fuel is stored in the north half of the spent fuel pool unless the rigging devices described above are used and the weight is limited to 39 tons. Specification (B5) limits the size of the allowable load that can be placed in or carried across either the north or south half of the spent fuel pool without redundant rigging when fuel is not present in the respective half of the pool. The 52,500 pound limit is consistent with the analysis done for the potential effects upon spent fuel stored in the south spent fuel pool in the event of a postulated cask drop in the north spent fuel pool. (4)

References

(1) FSAR - Section 9.5.2

(2) FSAR - Table 3.2.1-1

(3) FSAR - Volume 5, Question 9.3

(4) FSAR - Appendix F

15.4.14 SURVEILLANCE OF AUXILIARY BUILDING CRANE

Applicability:

Applies to surveillance requirements for the auxiliary building crane before and during handling of the spent fuel shipping casks.

Objective:

To verify that the crane bridge and trolley interlocks to prevent movement over spent fuel discharged less than one year are operational.

Specification:

1. The auxiliary building crane bridge and trolley positive acting limit switches, which prevent motion of the main crane hook over freshly discharged spent fuel assemblies, shall be demonstrated to be operable once a month.

Basis:

In order to further preclude damage to spent fuel assemblies which have been recently discharged from a reactor core in the event of a postulated heavy load drop incident, positive acting limit switches have been mounted on the bridge to restrict the auxiliary building crane movement. The switches are located to prevent cask movements over that portion of the spent fuel pool which contains spent fuel assemblies that have been subcritical for less than one year. An initiating signal from the limit switches will shut off drive power to the crane and set the brakes. The controls are such that the trolley can be moved only in the opposite direction after the limit switches have operated and the switches will automatically reset upon reverse movement.

Reference:

(1) FFDSAR Appendix F

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 fuel storage and spent fuel pool structures are designed to withstand the anticipated earthquake loadings as Class I structures. The spent fuel pool 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 $K_{eff} \leq 0.95$ with the storage pool filled unborated water and with the fuel loading in the assemblies limited to 44.8 grams of U-235 per axial centimeter of fuel assembly. An inspection area shall allow rotation of fuel assemblies for visual inspection, but shall not be used for storage.

3. The spent fuel storage pool shall be filled with borated water at a concentration of at least 1800 ppm boron whenever there are spent fuel assemblies in the storage pool.

4. Each storage location immediately adjacent to a wall shall be restricted to storage of fuel assemblies having a cooling time of one year or more.

References:

FSAR Section 9.3

(1) The number and types of samples taken and the measurements made on the samples; e.g., gross beta gamma scan, etc.

(2) Any changes made in sample types or locations during the reporting period, and criteria for these changes.

b. A summary of survey results during the reporting period.

4. Leak Testing of Source

Results of required leak tests performed on seal sources if the tests reveal the presence of 0.005 microcuries or more of removable contamination.

D. Poison Assembly Removal from Spent Fuel Storage Racks

Plans for removal of any poison assemblies from the spent fuel storage racks shall be reported and described at least 14 days prior to the planned activity. Such report shall describe neutron attenuation testing for any replacement poison assemblies, if applicable, to confirm the presence of boron material.

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

WISCONSIN ELECTRIC POWER COMPANY

DOCKET NO. 50-301

POINT BEACH NUCLEAR PLANT UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 41
License No. DPR-27

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Wisconsin Electric Power Company (the licensee) dated March 21, 1978, as supplemented and amended June 14, July 19, September 29 and October 10, 1978; January 3, 29 and 30, and February 7, 1979 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;

   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; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisifed.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 3.B is hereby amended to read as follows:

"(B) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 41, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications."

The license is further amended by the addition of new paragraph 3.E to read as follows:

"E. Spent Fuel Pool Modification

The licensee is authorized to modify the spent fuel storage pool to increase its storage capacity from 351 to 1502 assemblies as described in licensee's application dated March 21, 1978, as supplemented and amended. In the event that the on-site verification check for poison material in the poison assemblies discloses any missing boron plates, the NRC shall be notified and an on-site test on every poison assembly shall be performed."

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

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis L. Ziemann

Dennis L. Ziemann, Acting Assistant Director for Systems and Projects
Division of Operating Reactors

Attachment:
Changes to the Technical Specifications

Date of Issuance: April 4, 1979

ATTACHMENT TO LICENSE AMENDMENT NO. 41

FACILITY OPERATING LICENSE NO. DPR-27

DOCKET NO. 50-301

Revise Appendix A as follows:

Remove the following pages and insert the following revised pages:

Remove	Insert
15.3.8-1	15.3.8-1
15.3.8-2	15.3.8-2
15.3.8-3	15.3.8-3
15.3.8-4	15.3.8-4
-	15.3.8-5
-	15.3.8-6
15.4.14-1	15.4.14-1
15.4.14-2	-
15.5.4-1	15.5.4.-1
15.6.9-10	15.6.9-10

15.3.8 REFUELING AND SPENT FUEL ASSEMBLY STORAGE

Applicability:

Applies to operating limitations during refueling operations and to operating limitations concerning the movement of heavy loads over or into the spent fuel storage pools.

Objective:

To ensure that no incident could occur during refueling operations, or during auxiliary building crane operations that would affect public health and safety.

Specifications:

A. During refueling operations:

1. 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).
2. Radiation levels in fuel handling areas, the containment and spent fuel storage pool shall be monitored continuously.
3. 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.
4. At least one residual heat removal pump shall be in operation.
5. During reactor vessel head removal and while loading and unloading fuel from the reactor, a minimum boron concentration of 1800 ppm shall be maintained in the primary coolant system.

6. Direct communication between the control room and the operating floor of the containment shall be available whenever changes in core geometry are taking place.

7. 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.

8. 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.

B. Limitations on Load Movements Over a Spent Fuel Pool*

1. One ton shall be the maximum load allowed over either the north half or south half of the spent fuel storage pool when spent fuel which has been subcritical for less than one year is stored in that half of the spent fuel pool.

2. Auxiliary building crane bridge and trolley positive acting limit switches shall be installed to prevent motion of the main crane hook over that half of the spent fuel pool which contains stored spent fuel which has been subcritical for less than one year.

3. When transporting loads exceeding one ton over a pool half which has fuel stored therein, the rigging between the transported load and the crane hook shall consist of either a single rigging device rated at six times the static and dynamic loads or dual rigging devices

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* These are interim requirements pending completion and implementation of NRC Generic Task A-36 "Control of Heavy Loads Near Spent Fuel."

each rated at three times the static and dynamic loads. The maximum permissible crane load shall be 39 tons for the main hook and six tons for the auxiliary hook.

4. Whenever possible, loads shall be carried over or placed in the half of the spent fuel pool that does not have any spent fuel assemblies stored therein.

5. Loads not exceeding 52,500 pounds may be carried over either pool half (or placed in the north half of the spent fuel pool) provided that that half of the pool contains no spent fuel assemblies.

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 (A2 above) and neutron flux provides immediate indication of an unsafe condition. The residual heat pump is used to maintain a uniform boron concentration.

The shutdown margin indicated in Part A5 will keep the core subcritical, even if all control rods were withdrawn from the core. During refueling, the reactor refueling cavity is filled with approximately 275,000 gallons of borated water. The boron concentration of this water is sufficient to maintain the reactor subcritical approximately by 10% $\Delta k/k$ in the cold condition with all rods inserted, and will also maintain the core subcritical even if no control rods were inserted into the reactor.[2] Periodic checks of refueling water boron concentration insure that proper shutdown margin is maintained. Part A6 allows the control room operator to inform the manipulator operator of any impending unsafe condition detected from the main control board indicators during fuel movement.

During the refueling operation a substantial number of station personnel and perhaps some regulatory people will be in the containment. The requirements are to prevent an unsafe amount of radioactivity from escaping to the environment in the case of a refueling accident, and also to allow safe avenues of escape for the personnel inside the containment as required by the Wisconsin Department of Industry, Labor and Human Relations. To provide for these requirements, the personnel locks (both doors) are open for the normal refueling operations with a third temporary door which opens outward installed across the outside end of the personnel lock.[3] This hollow metal third door is equipped with weather stripping and an automatic door closer to minimize the exchange of inside air with the outside atmosphere under the very small differential pressures expected while in the refueling condition. Upon sounding of the containment evacuation alarm, all personnel will exit through the temporary door(s) and then all personnel lock doors shall be closed. As soon as possible, the fuel transfer gate value shall be closed to back up the 30 foot water seal to prevent escape of fission products.

The spent fuel storage pool at the Point Beach Nuclear Plant consists of a single pool with a four foot thick reinforced concrete divider wall which separates the pool into a north half and south half. The divider wall is notched to a point sixteen feet above the pool floor to allow transfer of assemblies from one half of the pool to the other

In order to preclude the possibility of dropping a heavy load onto spent fuel assemblies stored in the spent fuel pool and causing a release or radioacivity which could affect the public health and safety, a number of precautionary measures have been incorporated into these limiting conditions for operation. No loads are permitted to be carried over freshly discharged spent fuel assemblies other than single spent fuel assemblies, handling tools and items weighing less than 2000 pounds. Limit switches are installed to prevent motion of the auxiliary building crane main hook over the half of the spent fuel pool which contains freshly discharged fuel.

When it is possible to keep all the discharged spent fuel assemblies in either the north and south half of the pool, all heavy load transfers will be routed across the pool half which contains no stored fuel. When this is no longer possible, heavy loads will only be permitted to be carried over that half of the storage pool which contains spent fuel that has been subcritical for more than one year. The off site consequences of damaging such fuel assemblies are greatly reduced as the xenon and iodine fission product gases have decayed to essentially zero after one year.

In addition, the maximum load limits on the auxiliary building crane hooks have been selected such that a minimum safety factor of 10 exists between the permitted maximum load and the crane hook name plate rating times the minimum design safety factor. This results in a 39 ton limit on the 130 ton main hook and a six ton limit on the 20 ton auxiliary hook. The rigging between the auxiliary building crane hooks and the transported load must also be shown to have a safety factor of at least six over the static and dynamic loads if a single device is used and each rigging device must have a safety factor of three times the static and dynamic loads if dual straps, slings, or rigging devices are used. Dynamic loads include braking, accelerating, and slack loads.

Pending additional analysis which demonstrates that dropping a spent fuel shipping cask into the cask loading area of the north spent fuel pool will not cause an uncontrollable loss of spent fuel pool coolant or installation of the redundant crane hoisting mechanism described in Licensee's submittal of March 21, 1978, as amended; this specification (B3) precludes placing a spent fuel shipping cask into the cask loading area of the north pool when spent fuel is stored in the north half of the spent fuel pool unless the rigging devices described above are used and the weight is limited to 39 tons. Specification (B5) limits the size of the allowable load that can be placed in or carried across either the north or south half of the spent fuel pool without redundant rigging when fuel is not present in the respective half of the pool. The 52,500 pound limit is consistent with the analysis done for the potential effects upon spent fuel stored in the south spent fuel pool in the event of a postulated cask drop in the north spent fuel pool.[4]

References

(1) FSAR - Section 9.5.2

(2) FSAR - Table 3.2.1-1

(3) FSAR - Volume 5, Question 9.3

(4) FSAR - Appendix F

15.4.14 SURVEILLANCE OF AUXILIARY BUILDING CRANE

Applicability:

Applies to surveillance requirements for the auxiliary building crane before and during handling of the spent fuel shipping casks.

Objective:

To verify that the crane bridge and trolley interlocks to prevent movement over spent fuel discharged less than one year are operational.

Specification:

1. The auxiliary building crane bridge and trolley positive acting limit switches, which prevent motion of the main crane hook over freshly discharged spent fuel assemblies, shall be demonstrated to be operable once a month.

Basis:

In order to further preclude damage to spent fuel assemblies which have been recently discharged from a reactor core in the event of a postulated heavy load drop incident, positive acting limit switches have been mounted on the bridge to restrict the auxiliary building crane movement. The switches are located to prevent cask movements over that portion of the spent fuel pool which contains spent fuel assemblies that have been subcritical for less than one year. An initiating signal from the limit switches will shut off drive power to the crane and set the brakes. The controls are such that the trolley can be moved only in the opposite direction after the limit switches have operated and the switches will automatically reset upon reverse movement.

Reference:

(1) FFDSAR Appendix F

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 fuel storage and spent fuel pool structures are designed to withstand the anticipated earthquake loadings as Class I structures. The spent fuel pool 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 $K_{eff} \leq 0.95$ with the storage pool filled unborated water and with the fuel loading in the assemblies limited to 44.8 grams of U-235 per axial centimeter of fuel assembly. An inspection area shall allow rotation of fuel assemblies for visual inspection, but shall not be used for storage.

3. The spent fuel storage pool shall be filled with borated water at a concentration of at least 1800 ppm boron whenever there are spent fuel assemblies in the storage pool.

4. Each storage location immediately adjacent to a wall shall be restricted to storage of fuel assemblies having a cooling time of one year or more.

References:

FSAR Section 9.3

(1) The number and types of samples taken and the measurements made on the samples; e.g., gross beta gamma scan, etc.

(2) Any changes made in sample types or locations during the reporting period, and criteria for these changes.

b. A summary of survey results during the reporting period.

4. Leak Testing of Source

Results of required leak tests performed on seal sources if the tests reveal the presence of 0.005 microcuries or more of removable contamination.

D. Poison Assembly Removal from Spent Fuel Storage Racks

Plans for removal of any poison assemblies from the spent fuel storage racks shall be reported and described at least 14 days prior to the planned activity. Such report shall describe neutron attenuation testing for any replacement poison assemblies, if applicable, to confirm the presence of boron material.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO THE MODIFICATION OF THE SPENT FUEL STORAGE POOL

FACILITY OPERATING LICENSES NO. DPR-24 AND DPR-27

WISCONSIN ELECTRIC POWER COMPANY

POINT BEACH NUCLEAR PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-266 AND 50-301

1.0 INTRODUCTION

By letter and application dated March 21, 1978, as supplemented and amended on June 14, July 19, September 29, and October 10, 1978; January 3, 29 and 30, and February 7, 1979, Wisconsin Electric Power Company (the licensee or WEPCO) requested an amendment to Facility Operating Licenses No. DPR-24 and DPR-27 for Point Beach Nuclear Plant, Units No. 1 and 2.

The request was made to obtain authorization for additional storage capacity in the spent fuel pool and authorization for related modifications to the Auxiliary Building crane in support of the licensee's proposal to (1) increase the licensed capacity of the spent fuel shipping cask handling system and (2) modify restrictions on the placement of a spent fuel shipping cask into a portion of the spent fuel pool (SFP) while fuel assemblies are stored therein.

The proposed modification would increase the capacity of the SFP from the present capacity of 351 assemblies (288 in the south portion of the pool and 63 in the north portion of the pool) to 1502 assemblies (803 in the south pool and 699 in the north pool). The increased capacity would be achieved by installing new spent fuel storage racks with decreased spacing between fuel assembly storage cells and by more fully using available space in the north pool. The present racks in the south pool have a nominal center-to-center spacing between storage cells of 15.5 inches, while the present racks in the north pool are spaced 20 inches on center.

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The proposed racks consist of an array of stainless steel boxes which would have a nominal spacing of 9.98 inches.

The proposed modification to the spent fuel cask handling system (auxiliary building crane) would include a redundant lifting system for heavy loads and a cask anti-tip framework to be installed in the cask set-down area in the north pool.

The general arrangement and details of the new spent fuel storage racks and cask handling modifications are shown in the licensee's report "Spent Fuel Storage Expansion" forwarded with the application for amendment dated March 21, 1978, as revised through Revision 2.

In addition to the results of our review of the proposed spent fuel pool modification, this safety evaluation addresses our evaluation of the impact of Lake Michigan faulting on the proposed facility modification. This evaluation is included as Appendix A to this Safety Evaluation Report.

2.0 DISCUSSION AND EVALUATION

2.1 Criticality Considerations

2.1.1 Discussion

The proposed spent fuel storage racks are to be made up of individual, square cross section containers with an outer dimension of 9.98 inches and a length of about 14 feet. These containers will be made from 0.092 inch thick sheets of type 304 stainless steel, and they are to be edge-welded to each other to form a honeycomb structure. Thus the nominal distance between the centers of the stored fuel assemblies, i.e., the lattice pitch, is 9.98 inches.

The overall dimension of the square cross section of the fuel assembly used in the criticality calculations is 7.78 inches. This results in an overall fuel region volume fraction of 0.61 in the nominal storage lattice cell.

Two contiguous poison compartments will be formed inside of each of the storage containers by welding in five pieces of angle stock. These angles will form two 1.53 inch by 8.29 inch spaces into which two poison assemblies will be inserted.

Each poison assembly will support two pieces of 0.11 inch thick by 8.0 inch wide by 145.0 inch long Boraflex, which will be sandwiched between 0.020 inch thick sheets of stainless steel. Except for venting provisions, these sheets are seam welded at all edges to form an envelope to hold the Boraflex in place. The two Boraflex sandwiches will be separated by 1.06 inches of water; so the overall thickness of the poison assembly will be 1.36 inches. WEPCO states that every cubic centimeter of Boraflex will contain a minimum of 4.74×10^{21} atoms of the boron-ten isotope, and that the thickness of the Boraflex will be a minimum of 0.1 inches. Therefore, there will be a minimum areal density of 2.4×10^{21} boron-ten atoms per square centimeter between adjacent fuel assemblies.

2.1.2 Criticality Analysis

As stated in WEPCO's revised submittal, the fuel pool criticality calculations are based on unirradiated fuel assemblies with no burnable poison and a fuel loading of 44.8 grams of uranium-235 per axial centimeter of fuel assembly. These calculations were made by Pickard, Lowe, and Garrick, Inc. (PLG) for WEPCO. The basic method was to use PLG's version of the LEOPARD program to obtain four energy group cross sections for use in PDQ-7 diffusion theory calculations. Integral transport theory was used in one-dimensional, rectangular geometry to obtain the self-shielding factors for the boron-ten atoms. This method was used to calculate five critical experiments which had boron plates in them. The results reported in WEPCO's submittal are all within 0.01 Δk of the experimental values.

These programs were first used to calculate the neutron multiplication factor, k_∞, in the nominal proposed storage rack lattice and then used to calculate the changes in k_∞ due to fuel and boron loading tolerances, mechanical tolerances, and changes in temperature. PLG's calculated value for the maximum possible k_∞ for these fuel assemblies in the proposed racks is 0.904.

In order to assure that the neutron multiplication factor in the spent fuel pool will not increase due to the loss of boron from the racks, WEPCO states in their October 10, 1978, submittal that surveillance samples will be irradiated by fresh spent fuel from every refueling over a period of ten years. WEPCO also states that the amount and the sampling frequency of surveillance testing that will be done after the first ten year period will depend on the results of the initial ten year test.

2.1.3 Evaluation

A comparison of the above results with the results of other calculations which were made for high density spent fuel storage lattices with boron plates shows them to be acceptably accurate.

By assuming new, unirradiated fuel with no burnable poison or control rods, these calculations yield the maximum neutron multiplication factor that could be obtained throughout the life of the fuel assemblies. This includes the effect of the plutonium which is generated during the fuel cycle.

The NRC acceptance criteria for the criticality aspects of high density fuel storage racks is that the neutron multiplication factor in spent fuel pool shall be less than or equal to 0.95, including all uncertainties, under all conditions throughout the life of the racks. This 0.95 acceptance criterion is based on the overall uncertainties associated with the calculational methods, and it is our judgment that this provides sufficient margin to preclude criticality in fuel pools. Accordingly, there is a technical specification which limits the neutron multiplication factor, k_{eff}, in spent fuel pools to 0.95. To preclude any unreviewed increase, or increased uncertainty, in the calculated value of the neutron multiplication factor which could raise the actual k_{eff} in the fuel pool above 0.95 without being detected, a limit on the maximum fuel loading is required. Accordingly, we find that the proposed high density storage racks will meet the NRC criteria when the fuel loading in the assemblies described in these submittals is limited to 44.8 grams or less of uranium-235 per axial centimeter of fuel assembly. The licensee has agreed to Technical Specifications to this effect.

We find that WEPCO's proposed boron surveillance program for the first ten years is satisfactory and that the results of the first ten year program can be used to determine the amount and frequency of boron surveillance testing that will be done for the remaining life of the racks.

In its October 10, 1978 response to our request for additional information, WEPCO stated that in addition to the usual quality assurance program, two neutron attenuation tests will be performed to confirm the presence of the boron material. The first attentuation test will be performed on ten percent of the storage locations at the manufacturer's plant. The second neutron attentuation test will be performed at the plant site on at least five randomly selected storage locations in each rack. Thus the presence of the Boraflex in about five percent of the poison assemblies will be confirmed at the plant site. When this is done and no boron plates are found missing, it can be assumed that the Boraflex will not be missing from more than one out of every fifty poison assemblies. We find that this will not cause the neutron multiplication factor in the spent fuel pool to increase above 0.95. However, if any Boraflex plates are found to be missing, the NRC will be notified and a complete test on every storage location will be performed.

WEPCO states that these racks are designed so that poison assemblies can be removed from the fuel pool with a special key which removes a lock bolt. Since the removal of a poison assembly from the racks could involve replacement with other poison assemblies, we have proposed and the licensee has agreed to a Technical Specification which will require a special report to NRC two weeks prior to any such activity. By this means, we will be able to review the neutron attenuation testing to be applied to any replacements.

2.1.4 Conclusion

We find that when any number of the fuel assemblies, which WEPCO described in these submittals, which have no more than 44.8 grams of uranium-235 per axial centimeter of fuel assembly, are loaded into the proposed racks, the k_{eff} in the fuel pool will be less than the 0.95 limit. On the basis of the information submitted, and the k_{eff} and fuel loading limits stated above we conclude that there is reasonable assurance that our acceptance criteria on criticality will be met.

2.2 Spent Fuel Cooling

2.2.1 Discussion

The licensed thermal power of each Point Beach unit is 1518 MWT. WEPCO plans to refuel both Units 1 and 2 on an annual basis. This will require the replacement of about 36 of the 121 fuel assemblies in each core every year. Thus normal refuelings will take place at six month intervals. In calculating the maximum heat load, WEPCO assumed ten days after reactor shutdown to transfer one third of a core to the spent fuel pool. For a full core offloading WEPCO assumed thirteen days. With these delay times, WEPCO used the decay heat curves which it submitted to the NRC on March 28, 1975, to calculate 21.7×10^6 BTU/hr as the maximum heat load for the full core offload that would fill the modified pool with 1502 spent fuel assemblies.

The spent fuel pool cooling system, as described in WEPCO's January 31, 1977 submittal, consists of two pumps and two heat exchangers. Each pump is designed to pump 1250 gpm (6.25×10^5 pounds per hour), and each heat exchanger is designed to transfer 15.5×10^6 BTU/hr from 120°F fuel pool water to 65°F service water, which is flowing through the heat exchanger at a rate of 6.25×10^5 pounds per hour.

In its September 8, 1976 submittal, WEPCO stated that the equipment and piping in the spent fuel pool cooling system are designed to meet Seismic Category I requirements. Therefore, it can be expected that a cooling capability of 15.5×10^6 BTU/hr for 120°F fuel pool water will be maintained in the event of any single active failure.

2.2.2 Evaluation

Using the method given on pages 9.2.5-8 through 14 of the NRC Standard Review Plan, with the uncertainty factor, K, equal to 0.1 for decay times longer than 10^3 seconds, we calculate that the maximum peak heat load during the thirty-seventh refueling could be 10.9×10^6 BTU/hr and that the maximum peak heat load for a full core offload that essentially fills the pool could be 18.6×10^6 BTU/hr. This full core offload was assumed to take place six months after the thirty-fourth refueling. We also find that the maximum incremental heat load that could be added by increasing the number of spent fuel assemblies in the pool from 351 to 1502 is 3.8×10^6 BTU/hr. This is the difference in peak heat loads for full core offloads that would essentially fill the present and the modified pool.

We calculate that with both pumps operating, the spent fuel pool cooling system can maintain the fuel pool outlet water temperature below 120°F for either the normal refueling or the full core offload that fills the modified pool. We agree with WEPCO that for any of the postulated accidents the spent fuel pool outlet water temperature will not go above 145°F. This is an acceptable temperature.

2.2.3 Conclusion

We find that the present cooling capacity for the spent fuel pool will be sufficient to handle the incremental heat load that will be added by the proposed modification. We also find that this incremental heat load will not alter the safety considerations of spent fuel cooling from that which we previously reviewed and found to be acceptable.

2.3 Installation of Racks

The spent fuel pool at Point Beach is divided into a north section ("north pool") and a south section ("south pool"), separated by a four-foot wide weir wall of reinforced concrete. In its July 19, 1978, response to our request for additional information, WEPCO stated that all of the spent fuel assemblies in one section of the pool will be moved to the other section prior to changing the fuel racks. Thus all of the stored spent fuel assemblies will be in the south section at the time the racks are changed in the north section and vice versa. In addition, WEPCO states that administrative procedures will prevent fuel racks from being carried over the section which has spent fuel assemblies in it.

Since there will be no fuel assemblies in the fuel pool section during the reracking operations with the proposed administrative procedures in force, we find that there is reasonable assurance that there will not be any increase in neutron multiplication factor as a result of these operations.

2.4 Occupational Radiation Exposure

We have reviewed the licensee's plan for installation of the new high density racks which will be performed in two steps. Seven racks will be installed in the north pool in 1979 and eight racks will be installed in the south pool in 1980. In the matter of disposal of the present racks, the licensee presented alternative plans for rack disposal which considered removal, crating intact racks and shipping versus removing, cutting, crating and shipping. The licensee is considering the second option where the racks are cut into smaller sections to permit more efficient packaging in the shipping containers. More efficient packing results in a smaller volume of radioactive waste to be disposed of with resulting economic and environmental benefits, e.g., fewer waste shipments and conservation of low-level waste burial site space. This option, however, would result in a slight increase in occupational radiation exposure attributed to the cutting operation. The occupational radiation exposure for the intact (no cutting) disposal method is estimated to be 6.1 man-rem while the cutting method is estimated to be 7.6 man-rem. In both cases, as low as reasonably achievable (ALARA) technical considerations have been addressed. However, the licensee has not yet quantified a cost-benefit analysis of the alternatives and a disposal decision has not been made. The licensee will base his decision on this analysis. This operation represents a small fraction of the total man-rem burden from occupational exposures at the plant.

Installing the new high-density racks in first the north pool and then the south pool in two steps instead of completing the modification in a single step is acceptable because the occupational exposure for either method of installation should be approximately the same. Both the north pool and the south pool have some contamination from prior refuelings. The proposed modification is not expected to significantly increase the existing pool water activity and resulting radiation levels in the vicinity of the pool. Therefore, the occupational exposure for installing the new racks in two steps should be approximately the same as for installing these racks in a single step.

We have estimated the increment in onsite occupational dose resulting from the proposed increase in stored fuel assemblies on the basis of information supplied by the licensee and by making relevant assumptions for occupancy times and for dose rates in the spent fuel area from radionuclide concentrations in the SFP water. The spent fuel assemblies themselves contribute a negligible amount to dose rates in the pool area because of the depth of water shielding the fuel. Based on present and projected operations in the spent fuel pool area, we estimate that the proposed modification should add less than one percent to the total annual occupational radiation exposure burden at this facility. The small increase in radiation exposure will not affect the licensee's ability to maintain individual occupational doses to as low as is reasonably achievable and within the limits of 10 CFR 20. Thus, we conclude that storing additional fuel in the SFP will not result in any significant increase in doses received by occupational workers.

2.5 Radioactive Waste Treatment

The plant contains waste treatment systems designed to collect and process the gaseous, liquid and solid wastes that might contain radioactive material. The waste treatment systems were evaluated in the Safety Evaluation (SE) dated July 1970 and in Addendum No. 5 to the SE. There will be no change in the waste treatment systems or in the conclusions of the evaluation of these systems as described in Section 2.6 of the SE and in Section 3.0 of Addendum No. 5 to the SE because of the proposed modification.

2.6 Fuel and Heavy Load Handling

In its application of March 21, 1978, the licensee proposed to modify the existing auxiliary building crane to provide a redundant lifting system. This crane would be used to handle spent fuel casks and other heavy loads over and in the vicinity of the SFP. We have reviewed the information furnished by the licensee with respect to this proposal and have concluded that the information available at this time is not sufficient to enable us to complete a safety evaluation of its acceptability. Accordingly, this aspect of the licensee's application will have to be considered at a later time when sufficient design details are known.

The NRC staff has underway a generic review of load handling operations in the vicinity of spent fuel pools to determine the likelihood of a heavy load impacting fuel in the pool and, if necessary, the radiological consequences of such an event. The NRC staff held discussions with the licensee with regard to the need for additional restrictions on load handling in the vicinity of the SFP pending completion of this generic study. As a result of these discussions, the licensee proposed, in its letter dated February 7, 1979, revised precautionary measures to be incorporated into the Technical Specifications, as discussed below. No loads would be permitted to be carried over freshly discharged spent fuel assemblies (decay time less than one year) other than single spent fuel assemblies, handling tools, and items weighing less than 2000 pounds. Limit switches would prevent motion of the auxiliary building crane main hook over the section of the spent fuel pool (north pool or south pool) which contains freshly discharged fuel.

Whenever possible, loads would be carried over or placed in the section of the SFP that does not have any stored fuel assemblies. Therefore, the load path for all heavy loads (exceeding 2000 pounds) would be over an empty pool section. This will be possible until at least 1983, and could be possible until 1987 if fuel stored off-site at NFS and GE Morris does not need to be returned to Point Beach. Since the generic study is scheduled to be completed in 1979, it is expected that the issue of load handling in the vicinity of the spent fuel pool will be fully resolved well before the necessity to carry heavy loads over spent fuel arises at Point Beach.

Thus, for as long as it is possible to keep all the discharged spent fuel assemblies in either the north or south pool (until 1983 or 1987), all heavy load transfers will be routed across the pool section which contains no stored fuel. When this is no longer possible, heavy loads will only be permitted to be carried over that section of the storage pool which contains spent fuel that has been subcritical for more than one year. The offsite consequences of damaging such fuel assemblies are greatly reduced because the xenon and iodine fission product gases will have decayed to essentially zero after one year.

In addition, the maximum load limits on the auxiliary building crane hooks have been selected such that a minimum safety factor of 10 exists between the permitted maximum load and the crane hook nameplate rating times the minimum design safety factor. This results in a 39 ton limit on the 130 ton main hook and a six ton limit on the 20 ton auxiliary hook. The rigging between the auxiliary building crane hooks and the transported load must also be shown to have a safety factor of at least six over the static and dynamic loads if a single device is used and each rigging device must have a safety factor of three times the static and dynamic loads if dual straps, slings, or rigging devices are used. Dynamic loads include braking, accelerating, and slack loads.

Because these restrictions on heavy load handling, as proposed by the licensee, will be included in the Technical Specifications issued in connection with these amendments which authorize increased storage capacity of the Point Beach SFP, we have concluded that the likelihood of a heavy load handling accident is sufficiently small that the proposed pool modification is acceptable, and that the revised load handling restrictions are appropriate and acceptable measures pending completion of the NRC generic review of this matter.

The consequences of fuel handling accidents in the spent fuel pool area are not changed from those previously evaluated and found acceptable. The potential consequences of this postulated accident at the exclusion area boundary are given in Table 1 attached hereto. The potential consequences of this postulated accident at the low population zone are less than those presented for the exclusion area boundary in Table 1.

2.7 Structural and Mechanical Design

2.7.1 Discussion

The proposed spent fuel pool modification consists of replacing the old fuel storage racks with new, higher capacity fuel storage racks. The spent fuel storage racks are classified as seismic category I equipment. Wachter Associates, Incorporated is responsible for designing and fabricating the racks. Eight separate racks will provide 803 storage positions in the south pool and seven separate racks will provide 599 storage positions in the north pool. The north pool will also be equipped with a framework designed to prevent tipping of a spent fuel shipping cask while a shipping cask is set down in the north pool.

The spent fuel storage racks will be composed of square boxes with 0.092" thick walls welded into a "honeycomb" type structure as described in paragraph 2.1.1 of this SER. The base structure for each individual rack will be fabricated separately from the rack matrix. The storage racks will set on top of the bases with adjacent racks contacting each other. Seismic wall supports provide the means of transmitting lateral forces from the racks to the spent fuel pool walls.

The structural components of the new racks and base structures will be fabricated entirely of type 304 stainless steel. Stainless steel angles forming two rectangular cells in each storage box will hold two sheets of 8.0" wide x 0.11" thick Boraflex neutron absorber material each sandwiched between 0.02" thick sheets of stainless steel. Boraflex is a composite matrix of boron carbide (B_4C) and silicone rubber. The Boraflex assemblies will be vented to the pool water environment. They are arranged so that the fuel assemblies in a storage rack are separated from one another by a two-sandwich Boraflex assembly.

2.7.2 Evaluation

Supporting arrangements and rack restraints, design, fabrication, and installation procedures; structural analysis for all loads including seismic and impact; load combinations; structural acceptance criteria; quality assurance requirements for design, fabrication, and installation; and applicable industrial codes were all reviewed in accordance with the criteria described in Sections 3.7 and 3.8 of the Standard Review Plan and in the Branch Technical Position on Spent Fuel Pool Modifications.

Seismic analysis was performed using the floor response spectra that were used in the original plant design with appropriate damping values of 2% and 5% for OBE and SSE, respectively. A damping value of 0.5% was used for analysis of the racks. Combination of seismic vibrational modes and three orthogonal components of motion were done in accordance with Regulatory Guide 1.92. Virtual mass effects were included in the analysis.

Impact loads including rattling of fuel bundles in the cells during a seismic event and postulated drops of fuel bundles onto the racks were analyzed. With regard to the postulated drop of a fuel bundle directly into a fuel storage location, the licensee's analysis shows that the bottom plate in the fuel storage cell will maintain its integrity. Independent calculations by the staff indicate that such a dropped fuel bundle could potentially shear the welds between the bottom plate and the walls of the storage cell and impact the floor of the spent fuel pool. In the unlikely event of damage to the fuel pool liner, the pool is equipped with a leakage collection system. Furthermore, the licensee has shown that repairs to the liner could be made (Response to Interrogatory 11 in Wisconsin Electric Power Company's November 1, 1978 response to interrogatories propounded by the State of Wisconsin). Analysis of the spent fuel pool structure including the walls, floor, and foundation was performed for the new rack design.

We conclude that the structural and mechanical aspects of the design and fabrication of the new spent fuel storage racks are acceptable.

The type 304 stainless steel used in the new storage racks is compatible with the storage pool environment, which is oxygen-saturated high purity demineralized water containing boron as boric acid and controlled to a maximum 120°F temperature. In this pool water environment, the corrosive deterioration of the 304 alloy should not exceed a thickness removal rate of 5.96×10^{-5} inches in 100 years, which is minute relative to the initial thickness. Dissimilar alloy interaction (electrolytic or galvanic corrosion) between the 304 stainless steel storage racks, Inconel and Zircaloy in the spent fuel assemblies, and the 304L stainless steel pool liner will be of no significance because of the minute electrical potential differential.

The Boraflex neutron absorber material is inert to the pool water environment and will not be degraded by corrosion. Irradiation will cause embrittlement of the Boraflex; however, it is contained by the stainless steel shrouds and will remain in place. Venting of the Boraflex to the pool water will allow generated gas to escape and prevent bulging or swelling of the stainless steel shrouds.

Based on the evaluation presented above, we find that the new proposed Point Beach spent fuel storage racks and the design materials used and the analyses performed for the racks, support frames, and pool are in conformance with established criteria, codes and standards specified in the staff position for acceptance of spent fuel storage and handling applications. Therefore, we find that the subject modification proposed by the licensee is acceptable, and satisfies the applicable requirements of the General Design Criteria 2, 4, 61 and 62 of 10 CFR, Part 50, Appendix A.

3.0 SUMMARY

Our evaluation supports the conclusion that the proposed modification to the Point Beach SFP is acceptable because:

(1) The increase in occupational radiation exposure to individuals due to the storage of additional fuel in the SFP is negligible.

(2) The installation and use of the new fuel racks does not alter the consequences of the design basis accident for the SFP, i.e., the rupture of a fuel assembly and subsequent release of the assembly's radioactive inventory within the gap.

(3) The likelihood of an accident involving heavy loads in the vicinity of the spent fuel pool is acceptably small.

(4) The physical design of the new storage racks will preclude criticality for any credible moderating condition with the limits to be stated in the Technical Specifications.

(5) The SFP has adequate cooling with existing systems.

(6) The structural design and the materials of construction are adequate to function normally for the duration of plant lifetime and to withstand the seismic loading of the design basis earthquakes.

4.0 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, and (2) such activities will be conducted in compliance with the Commission's regulations and that the proposed action to permit installation and use of high density spent fuel storage racks in the spent fuel pool at Point Beach Nuclear Plant will not be inimical to the common defense and security or to the health and safety of the public.

Date: April 4, 1979

Table 1

ASSUMPTIONS FOR AND POTENTIAL CONSEQUENCES OF A POSTULATED FUEL HANDLING ACCIDENT AT THE EXCLUSION AREA BOUNDARY FOR POINT BEACH NUCLEAR PLANT UNITS 1 AND 2

Assumptions:

Guidance in Regulatory Guide 1.25		
Power Level	1548 Mwt	
Operating Time	3 years	
Peaking Factor	1.65	
Number of Assemblies Damaged	1	
Number of Assemblies in Core	121	
Charcoal Filters Available	0	
Decay Time before Moving Fuel	72 hours	
X/Q Value Exclusion Area Boundary (Ground Level Release)	0-2 hours	1.6×10^{-4} sec/m^3

	Doses, Rem	
	Thyroid	Whole Body
Consequences from Accidents In Spent Fuel Pool	36	0.13

APPENDIX A

IMPACT OF LAKE MICHIGAN FAULTING ON PROPOSED SPENT FUEL POOL MODIFICATION POINT BEACH NUCLEAR PLANT

On June 22, 1978, during a visit to the Haven site, Wisconsin Electric Power Company presented to the NRC staff preliminary geologic information on NNE-trending faults within Lake Michigan. These data were presented as an initial response to NRC questions. Sufficient information was not presented at that time to define the faults' characteristics. An amendment to the Haven PSAR on the geology of Lake Michigan is currently being reviewed by the NRC staff. The applicant has stated that additional studies of the faults are being conducted and will be included in a future amendment to the Haven Preliminary Safety Analysis Report.

Based on the tectonic history of the region and the absence of historic seismicity, we have a high degree of confidence that the faults beneath Lake Michigan are geologically old and pose no potential to increase the earthquake hazard of the region. The Haven site is located on the western edge of the Michigan Basin within the Central Stable Region tectonic province. This province is generally characterized by gentle arches, domes and basins (i.e., Michigan Basin) which formed during several tectonic epeirogenic episodes (episodes of broad gentle vertical movement of the Earth's crust) during the Paleozoic Era more than 225 million years ago (mybp). There is no known geologic evidence of tectonic deformation or faulting in the region subsequent to that time. Faulting within the Paleozoic age rocks in the Central Stable Region was, however, widespread prior to and including the deposition of the Mississippian age rocks (320 + mybp). The discovery of faulting within Mississippian rock units beneath Lake Michigan was, therefore, not unexpected. On the contrary it is consistent with the known tectonic history of the region.

Based on the information available to the staff at the present time, we do not consider the indications of faulting near the Haven site to be relevant and material to previous staff conclusions with respect to the geologic hazard at the Point Beach site.

In view of the above, we have concluded that the licensing action associated with the proposed Point Beach spent fuel pool modification need not be delayed pending submittal and review of additional information on faulting near the Haven site.

ENVIRONMENTAL IMPACT APPRAISAL

BY THE OFFICE OF NUCLEAR REACTOR

REGULATION RELATING TO

MODIFICATION OF THE SPENT FUEL STORAGE POOL

FACILITY OPERATING LICENSE NOS. DPR-24 AND DPR-27

WISCONSIN ELECTRIC POWER COMPANY

POINT BEACH NUCLEAR PLANT

DOCKET NOS. 50-266 AND 50-301

1.0 DESCRIPTION OF PROPOSED ACTION

In its submittal of March 21, 1978, as supplemented and amended, Wisconsin Electric Power Company (the licensee) proposed to increase the total storage capacity of the spent fuel pool (SFP) at Point Beach Nuclear Plant Units 1 and 2 (Point Beach) from 351 to 1502 fuel assemblies.

2.0 NEED FOR INCREASED STORAGE CAPACITY

Point Beach Nuclear Plant consists of two 497 MWe pressurized water reactors located near Two Creeks, Wisconsin. Point Beach Unit 1 received Facility Operating License No. DPR-24 in October 1970 and has been in commercial operation since December of that year. Point Beach Unit 2 received Facility Operating License No. DPR-27 in November 1971 and has been in commercial operation since October 1972. The reactor spent fuel storage pool at Point Beach contains fuel storage racks for 351 fuel assemblies.

During a normal refueling about one third of the fuel assemblies in each unit are replaced by new fuel. The period between refueling intervals averages twelve months per unit depending on plant operating history and the system wide outage schedule. Therefore, about 72 spent fuel assemblies are placed in the SFP annually from both units.

The Point Beach SFP currently contains 180 spent fuel assemblies from numerous operating cycles. With the projected refueling cycles and the current number of empty spent fuel rack spaces, the spent fuel pool can accommodate the fuel assemblies discharged from both units only until fall 1980. The capacity to accommodate an entire core offload from a single unit will be lost in the fall of this year.

By adding an additional 1151 fuel storage positions, the proposed modification would accommodate additional spent fuel discharges through 1993 and maintain full (single) core offload capability through 1991.*

The proposed modification to the SFP will not alter the external physical geometry or require modifications to the SFP cooling or purification systems. The proposed modification does not affect the rate of spent fuel generation or the total quantity of spent fuel generated during the anticipated operating lifetime of the facility. The proposed modification will increase the number of spent fuel assemblies stored in the SFP and the length of time that some of the fuel assemblies will be stored in the pool.

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* These times assume that fuel stored at GE Morris and NFS will be returned to Point Beach. If this fuel is not returned, the dates above would be extended by an additional three years.

3.0 FUEL REPROCESSING HISTORY

Currently, spent fuel is not being reprocessed on a commercial basis in the United States. The Nuclear Fuel Service (NFS) plant at West Valley, New York, was shut down in 1972 for alterations and expansions; on September 22, 1976, NFS informed the Commission that they were withdrawing from the nuclear fuel reprocessing business. The Allied General Nuclear Services (AGNS) proposed plant in Barnwell, South Carolina is not licensed to operate.

The General Electric Company's (GE) Midwest Fuel Recovery Plant (MFRP) in Morris, Illinois is in a decommissioned condition. Although no plants are licensed for reprocessing fuel, the storage pool at Morris, Illinois and the storage pool at West Valley, New York (on land owned by the State of New York and leased to NFS thru 1980) are licensed to store spent fuel. The storage pool at West Valley is not full but NFS is presently not accepting any additional spent fuel for storage, even from those power generating facilities that had contractual arrangements with NFS. Construction of the AGNS receiving and storage station has been completed. AGNS has applied for - but has not been granted - a license to receive and store irradiated fuel assemblies in the storage pool at Barnwell prior to a decision on the licensing action relating to the separation facility.

4.0 THE PLANT

The Point Beach Nuclear Plant is described in the Final Environmental Statement (FES) issued by the Commission in May 1972. Each Point Beach unit is a pressurized water reactor (PWR) which produces approximately 497 megawatts net electrical output (MWe). Pertinent descriptions of principal features are summarized below to aid the reader in following the evaluations in subsequent sections of this appraisal.

4.1 Fuel Inventory

Each Point Beach reactor core contains 121 fuel assemblies. The fuel is in the form of slightly enriched uranium dioxide ceramic pellets. The pellets are stacked to an active height of 144 inches within Zircaloy-4 tubular cladding which is plugged and seal-welded at the ends to encapsulate the fuel. Approximately one-third of the assemblies are removed from the reactor and replaced with new fuel each operating cycle.

4.2 Plant Cooling Water Systems

The Point Beach condenser cooling water and service water systems use water supplied by Lake Michigan. Condenser cooling water is supplied to each unit by two half-capacity circulating water pumps, each designed to supply 175,000 gpm to the condenser. The service water system furnishes cooling water to the component cooling water system, the containment coolers, the auxiliary feedwater pumps, diesel generators, air compressors and control room air conditioners. The service water system acts as the heat sink for all equipment vital to plant safety. The service water system supplies cooling water to the two spent fuel pool heat exchangers.

4.3 Radioactive Wastes

The plant contains waste treatment systems designed to collect and process the gaseous, liquid and solid waste that might contain radioactive material. The waste treatment systems are evaluated in the Final Environmental Statement (FES) dated May 1972. There will be no change in the waste treatment systems described in Section III.D.2 of the FES because of the proposed modification.

4.4 Purpose of Spent Fuel Pool

The SFP at Point Beach is designed to store spent fuel assemblies prior to shipment offsite. These assemblies may be transferred from the reactor cores to the SFP during a core refueling, or to allow for inspection and/or modification of core internals. The latter may require the removal and storage of up to a full core. The assemblies upon removal from the core are initially intensely radioactive due to their fission product content and have a high residual heat output. They are stored in the SFP to allow for radioactive and thermal decay.

4.5 Spent Fuel Pool Cooling and Purification System

The SFP cooling and purification system includes two pumps, two heat exchangers, a filter, a demineralizer and the required piping, valves and instrumentation. The pumps draw water from the pool. This water is passed through the filter, demineralizer and heat exchangers and returned to the pool.

Because we expect only a small increase in radioactivity released to the pool water as a result of the proposed modification as discussed in Section 5.3.1, we conclude that the existing SFP purification system will keep concentrations of radioactivity in the pool water to levels which have existed prior to the modification.

5.0 ENVIRONMENTAL IMPACTS OF PROPOSED ACTION

5.1 Land Use

The Point Beach SFP is located between the two reactor buildings in the Auxiliary Building. The proposed modification will not alter the external physical geometry of the SFP or the enclosing building. No additional commitment of land is required.

5.2 Water Use

There will be no significant change in plant water usage as a result of the proposed modification. As discussed in the accompanying Safety Evaluation, storing additional spent fuel in the SFP will slightly increase the heat load on the SFP cooling system. This heat load will be transferred to the service water system. The modification will not change the flow rates within these cooling systems. With the increased spent fuel storage capacity, the normal refueling condition or a full core discharge is expected to result in a peak pool temperature below 120°F. The maximum expected total heat load will occur after discharge of a full core. The SFP cooling system has adequate design capacity following discharge of a full core at any time to maintain the pool water temperature below 145°F. Since the temperature of the SFP water during normal refueling operations will remain below 120°F, the rate of evaporation and thus the need for makeup water will not be significantly changed by the proposed modification.

5.3 Radiological

5.3.1 Introduction

The potential offsite radiological environmental impacts associated with the proposed expansion of the spent fuel storage capacity at Point Beach were evaluated and determined to be environmentally insignificant as addressed below.

The additional spent fuel which would be stored due to the expansion would be the oldest fuel which has not been shipped from the plant. This fuel should have decayed at least four years. During the storage of the spent fuel under water, both volatile and nonvolatile radioactive nuclides may be released to the water from the surface of the assemblies or from defects in the fuel cladding. Most of such material released from the surface of the assemblies consists of activated corrosion products such as Co-58, Co-60, Fe-59 and Mn-54 which are not volatile. The radionuclides that might be released to the water through defects in the cladding, such as Cs-134, Cs-137, Sr-89 and Sr-90, are also predominately nonvolatile. The primary impact of such nonvolatile radioactive nuclides is their contribution to radiation levels to which workers in and near the SFP would be exposed. The volatile fission product nuclides of most concern that might be released through defects in the fuel cladding are the noble gases (xenon and krypton), tritium and the iodine isotopes.

Experience indicates that there is little radionuclide leakage from spent fuel stored in pools after the fuel has cooled for several months. The predominance of radionuclides in the spent fuel pool water appear to be radionuclides that were present in the reactor coolant system prior to refueling (which becomes mixed with water in the spent fuel pool during refueling operations) or crud dislodged from the surface of the spent fuel during transfer from the reactor core to the SFP. During and after refueling, the spent fuel pool cleanup system reduces the radioactivity concentrations considerably. It is theorized that most failed fuel contains small, pinhole-like perforations in the fuel cladding at the reactor operating condition of approximately 800°F. A few weeks after refueling, the spent fuel cools in the spent fuel pool so that fuel clad temperature is relatively cool, approximately 180°F. This substantial temperature reduction should reduce the rate of release of fission products from the fuel pellets and decrease the gas pressure in the gap between pellets and clad, thereby tending to retain the fission products within the gap.

In addition, most of the gaseous fission products have short half-lives and decay to insignificant levels within a few months. Based on the operational reports submitted by the licensees or discussions with the operators of the Morris Operation (MO) (formerly Midwest Recovery Plant) at Morris, Illinois, or at Nuclear Fuel Services' (NFS) storage pool at West Valley, New York, there has not been any significant leakage of fission products from spent light water reactor fuel stored in their pools. Spent fuel has been stored in these two pools which, while it was in a reactor was determined to have had significant leakage and was therefore removed from the core. After storage in the reactor facility's onsite spent fuel pool, this fuel was later shipped to either MO or NFS for extended storage. Although the fuel had exhibited significant leakage at reactor operating conditions, there was no significant leakage from this fuel in the offsite storage facility.

5.3.2 Radioactive Material Released to Atmosphere

With respect to gaseous releases, the only significant noble gas isotope attributable to storing additional assemblies for a longer period of time would be krypton-85. As discussed previously, experience has demonstrated that after spent fuel has decayed 4 to 6 months, there is no significant release of fission products from defective fuel assemblies. However, we have conservatively estimated that an additional 62 Curies per year of krypton-85 may be released when the modified pool racks are completely filled. This increase would result in an additional total body dose of less than 0.0005 mrem/year to an individual at the site boundary. This dose is insignificant when compared to the approximately 100 mrem/year that an individual receives from natural background radiation. The additional total body dose to the estimated population within a 50-mile radius of the plant is less than 0.002 man-rem/year. This is small compared to the fluctuations in the annual dose this population would receive from natural background radiation. Under our conservative assumptions, these exposures represent an increase of less than 0.1% of the exposures from the plant evaluated in the FES for the individual (Table 7) and the population (Table 8). Thus, we conclude that the proposed modification will not have any significant impact on exposures offsite.

Assuming that the spent fuel will be stored onsite for several years, iodine-131 releases from spent fuel assemblies to the SFP water will not be significantly increased because of the expansion of the fuel storage capacity since the iodine-131 inventory in the fuel will decay to negligible levels between refuelings.

Storing additional spent fuel assemblies is not expected to increase the bulk water temperature during normal refuelings above the 120°F used in the design analysis. Therefore, it is not expected that there will be any significant change in the annual releases of tritium or iodine as a result of the proposed modification from those previously evaluated in the FES. Most airborne releases from the plant result from leakage of reactor coolant which contains tritium and iodine in higher concentrations than the spent fuel pool water. Therefore, even if there were a slightly higher evaporation rate from the spent fuel pool, the increase in tritium and iodine released from the plant as a result of the increase in stored spent fuel would be small compared to the amount normally released from the plant and that which was previously evaluated in the FES. The plant radiological effluent Technical Specifications, which are not being changed by this action, restrict the total releases of gaseous activity from the plant including the SFP.

5.3.3 Solid Radioactive Wastes

Independent of the proposed modification, the concentration of radionuclides in the pool is controlled by the filter and demineralizer and by the decay of short-lived isotopes. The activity is highest during refueling operations while reactor coolant water is introduced into the pool and decreases as the pool water is processed through the filter and demineralizer. The increase of radioactivity as a result of the proposed modification, if any, should be minor because the additional spent fuel to be stored will have been in the pool for four years or more, and therefore is relatively cool, thermally, and radionuclides in the fuel will have decayed significantly.

While we believe that there should not be an increase in solid radwaste due to the modification, as a conservative estimate we have assumed that the amount of solid radwaste may be increased by about 20 cubic feet of resin a year from the demineralizer (one additional resin bed/year). The annual average amount of solid waste shipped from Point Beach during 1972 to 1976 is 8,660 cubic feet per year. If the storage of additional spent fuel were to increase the amount of solid waste from the SFP purification system by about 20 cubic feet per year, the increase in total waste volume shipped would be less than 0.3% and would not have any significant environmental impact.

The present spent fuel racks to be removed from the SFP are contaminated and would be disposed of as low level waste at a licensed burial site.

The licensee has estimated that less than 10,000 cubic feet of low level solid radwaste will be removed from the SFP because of the proposed modification. Therefore, the total volume of solid radwaste shipped from the plant will be increased by less than 3% per year when averaged over the lifetime of the plant. This will not have any significant environmental impact.

5.3.4 Radioactivity Released to Receiving Waters

There should not be a significant increase in the liquid release of radionuclides from the plant as a result of the proposed modification. The amount of radioactivity on the SFP filter-demineralizer might slightly increase due to the additional aged spent fuel in the pool but this increase of radioactivity should not be released in liquid effluents from the station. In addition, the plant radiological effluent Technical Specifications, which are not being changed by this action, restrict the total releases of activity in liquids from the plant.

The cartridge filter removes insoluble radioactive matter from the SFP water. This is periodically removed to the waste disposal area and placed in a shielded shipping container. The insoluble matter will be retained on the filter or remain in the SFP water.

The demineralizer resins are periodically flushed with water to the spent resin storage cask cubicle. Excess water used to transfer spent resin is decanted and returned to the liquid radwaste system for processing. The soluble radioactivity will be retained on the resins. If any activity should be transferred from the spent resin to this flush water, it would be removed by the liquid radwaste system.

Leakage from the SFP is collected in the SFP leak collection system and Auxiliary Building sump. This water is transferred to the liquid radwaste system and is processed by the system before any water is discharged to Lake Michigan.

5.3.5 Occupational Exposures

We have reviewed the licensee's plan for the removal and disposal of the present low density racks and the installation of the new high density racks in two steps (i.e., installing seven racks in 1979 and eight racks in 1980) with respect to occupational radiation exposure. The occupational exposure for this operation is estimated by the licensee to be less than 8 man-rem. We consider this to be a reasonable estimate.

We have estimated the increment in onsite occupational dose resulting from the proposed increase in stored fuel assemblies on the basis of information supplied by the licensee and by using relevant assumptions for occupancy times and for dose rates in the spent fuel area from radionuclide concentrations in the SFP water. The spent fuel assemblies themselves contribute a negligible amount to dose rates in the pool area because of the depth of water shielding the fuel. Based on present and projected operations in the spent fuel pool area, we estimate that the proposed modification should add less than one percent to the total annual occupational radiation exposure burden at this facility. Thus, we conclude that storing additional fuel in the SFP will not result in any significant increase in doses received by occupational workers.

5.3.6 Impacts of Other Pool Modifications

As discussed above, the additional environmental impacts in the vicinity of Point Beach resulting from the proposed modification are very small fractions (less than 1%) of the impacts evaluated in the Point Beach FES. These additional impacts are too small to be considered anything but local in character.

Kewaunee Nuclear Power Plant is located on a lakefront site 4.5 miles north of the Point Beach site. By letter dated November 14, 1977, Wisconsin Public Service Corporation proposed increasing the spent fuel storage capacity at Kewaunee. Operation of Kewaunee was evaluated by the NRC staff in the Final Environmental Statement dated December 1972 for Kewaunee Nuclear Power Plant.

The only impact of any potential environmental significance at Point Beach from the proposed SFP modification at Kewaunee would be the increased gaseous effluent attributable to the Kewaunee SFP modification. We have conservatively estimated an additional 29 Curies per year of krypton-85 may be released from Kewaunee when its modified pool is completely filled. This additional krypton-85 would result in an additional total body dose that might be received by an individual near Point Beach or by the estimated population within a 50-mile radius of less than 0.0005 mrem/year and 0.0005 man-rem/year, respectively.

Summing the additional exposures resulting from the proposed SFP modifications at both Kewaunee and Point Beach shows the additional total body dose that might be received by an individual and by the estimated population out to 50 miles is less than .001 mrem/year and 0.0025 man-rem/year, respectively. These summed exposures are small compared to the fluctuations in the annual dose this population receives from natural background radiation and represents an increase of less than 2% of the exposures evaluated in either the Kewaunee or the Point Beach FES. We have concluded that these dose estimates are not significant and they are conservative because they neglect the distance between the Kewaunee and Point Beach sites.

Based on the above, we conclude that a proposed SFP modification at any other existing facility should not significantly contribute to the environmental impact of the Point Beach Nuclear Plant and that the proposed Point Beach SFP modification should not contribute significantly to the environmental impact of any other facility.

5.3.7 Evaluation of Radiological Impact

As discussed above, the proposed modification would not significantly increase the radiological impact evaluated in the Point Beach FES.

6.0 ENVIRONMENTAL IMPACT OF POSTULATED ACCIDENTS

Although the new high density racks will accommodate a larger inventory of spent fuel, we have determined that the installation and use of the racks will not change the environmental impact of a postulated fuel handling accident in the SFP area from those values reported in the FES for Point Beach dated May 1972.

The NRC staff has under way a generic review of load handling operations in the vicinity of spent fuel pools to determine the likelihood of a heavy load impacting fuel in the pool and, if necessary, the radiological consequences of such an event. Because Point Beach will be prohibited from carrying loads greater than one ton (the approximate weight of a fuel assembly and associated handling tool) over spent fuel that has cooled for less than one year in the SFP (and other restrictions as discussed in the Safety Evaluation associated with these amendments), we have concluded that the likelihood of a heavy load handling accident is sufficiently small that the proposed modification is acceptable and no additional restrictions on load handling operations in the vicinity of the SFP are necessary pending completion of this review.

7.0 ALTERNATIVES

In regard to this licensing action, the staff has considered the following alternatives: (1) reprocessing of spent fuel, (2) storage at an independent commercial facility; (3) storage at another nuclear facility; (4) shutdown of the facility.

7.1 Reprocessing of Spent Fuel

As discussed earlier, none of the three commercial reprocessing facilities in the U.S. are currently operating. The General Electric Company's Midwest Fuel Recovery Plant (MFRP) at Morris, Illinois is in a decommissioned condition. On September 22, 1976, Nuclear Fuel Services, Inc. (NFS) informed the Nuclear Regulatory Commission that they were "withdrawing from the nuclear fuel reprocessing business." The Allied General Nuclear Services (AGNS) reprocessing plant received a construction permit on

December 18, 1970. In October 1973, AGNS applied for an operating license for the separation facility; construction of the separation facility is essentially complete. On July 3, 1974, AGNS applied for a materials license to receive and store up to 400 metric tons uranium (MTU) in spent fuel in the onsite storage pool, on which construction has been completed. Hearings on the materials license application have not been completed.

In 1976, Exxon Nuclear Company, Inc. submitted an application for a proposed Nuclear Fuel Recovery and Recycling Center (NFRRC) to be located at Oak Ridge, Tennessee. The plant would include a storage pool that could store up to 7,000 MTU in spent fuel.

On April 7, 1977, the President issued a statement outlining his policy on continued development of nuclear energy in the U.S. The President stated that: "We will defer indefinitely the commercial reprocessing and recycling of the plutonium produced in the U.S. nuclear power programs. From our own experience, we have concluded that a viable and economic nuclear power program can be sustained without such reprocessing and recycling."

The Nuclear Regulatory Commission issued an order dated December 30, 1977 terminating proceedings to license reprocessing facilities (42 FR 65334).

The licensee had intended to reprocess the spent fuel to recover and recycle the uranium and plutonium in the fuel. Due to a change in national policy and circumstances beyond its control, reprocessing of the spent fuel is not an available option at this time. Even if national policy were changed tomorrow to allow reprocessing of spent fuel, the time required to process the current national inventory of spent fuel would be approximately ten years.

7.2 Independent Spent Fuel Storage Facility

An alternative to expansion of onsite spent fuel pool storage is the construction of new "independent spent fuel storage installations" (ISFSI). Such installations could provide storage space in excess of 1,000 metric tons of uranium (MTU) of spent fuel. This is greater than the capacities of onsite storage pools. Fuel storage pools at GE Morris and NFS are functioning as ISFSIs although this was not the original design intent. Likewise, if the AGNS receiving and storage station at its Barnwell, South Carolina reprocessing plant were licensed to accept spent fuel, it would be functioning as an ISFSI. The AGNS position, however, has generally been that it will not commercially operate an ISFSI. The license for the GE facility at Morris, Illinois was amended on December 3, 1975 to increase the storage capacity to about 750 MTU*; as of August 30, 1978, approximately 310 MTU were stored in the pool in the form of 1,196 assemblies.

* An application for an 1100 MTU capacity addition is pending, but proceedings have been suspended indefinitely.

The staff has discussed the status of storage space at Morris Operations (MO) with GE personnel. We have been informed that GE is primarily operating the MO facility to store either fuel owned by GE (which had been leased to utilities) or fuel which GE had previously contracted to reprocess.* We understand that the present GE policy is not to accept spent fuel for storage except for that fuel for which GE has a previous commitment. The licensee currently is storing 109 spent fuel assemblies at Morris. Existing storage agreements between the licensee and General Electric do not provide for any additional storage of spent fuel. Unless otherwise mutually agreed between the parties, all spent fuel stored at Morris is to be removed by December 31, 1982. It is possible that arrangements for extended storage beyond 1982 may be negotiated. The licensee does not consider additional storage at Morris a possibility. In any event, storage space at Morris is extremely limited when compared to the national need for storage.

The NFS facility has capacity for about 260 MTU, with approximately 170 MTU presently stored in the pool. The storage pool at West Valley, New York is on land owned by the State of New York and leased to NFS through 1980. Although the storage pool at West Valley is not full, since NFS withdrew from the fuel reprocessing business, correspondence we have received indicates that NFS is not at present accepting additional spent fuel for storage even from those reactor facilities with which they had contracts. The licensee currently is storing 114 fuel assemblies at NFS. The contractual obligation for NFS to provide storage terminates upon expiration of its lease agreement on December 31, 1980. Additional storage at NFS is not considered a possibility in the near future.

With respect to construction of new ISFSIs, Regulatory Guide 3.24, "Guidance on the License Application, Siting, Design, and Plant Protection for an Independent Spent Fuel Storage Installation," issued in December 1974, recognizes the possible need for ISFSIs and provides recommended criteria and requirements for water-cooled ISFSIs. Pertinent sections of 10 CFR Parts 19, 20, 30, 40, 51, 70, 71 and 73 would also apply. On October 6, 1978, the Commission proposed a new regulation to provide for the issuance of licenses to store spent fuel in independent spent fuel storage installations. The proposed 10 CFR Part 72, "Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Installation (ISFSI)," specifies procedures and requirements for the issuance of such licenses along with requirements for the siting, design, operation and recordkeeping activities of the facilities.

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*GE letter to NRC dated May 27, 1977.

The staff has estimated that at least five years would be required for completion of an independent fuel storage facility. This estimate assumes one year for preliminary design; one year for preparation of the license application, Environmental Report, and licensing review in parallel with one year for detail design; two and one-half years for construction and receipt of an operating license; and one-half year for plant and equipment testing and startup.

Industry proposals for independent spent fuel storage facilities are scarce to date. In late 1974, E. R. Johnson Associates, Inc. and Merrill, Lynch, Pierce, Fenner and Smith, Inc. issued a series of joint proposals to a number of electric utility companies having nuclear plants in operation or contemplated for operation, offering to provide independent storage services for spent nuclear fuel. A paper on this proposed project was presented at the American Nuclear Society meeting in November 1975 (ANS Transactions, 1975 Winter Meeting, Vol. 22, TANSAO 22-1-186, 1975). In 1974, E. R. Johnson Associates estimated their construction cost at approximately $20 million.

Several licensees have evaluated construction of a separate independent spent fuel storage facility and have provided cost estimates. Connecticut Yankee, for example, estimated that to build an independent facility with a storage capacity of 1,000 MTU (BWR and/or PWR assemblies) would cost approximately $54 million and take about 5 years to put into operation. Commonwealth Edison estimated the construction cost to build a fuel storage facility at about $10,000 per fuel assembly. To this would be added the costs for maintenance, operation, safeguards, security, interest on investment, overhead, transportation and other costs.

On December 2, 1976, Stone and Webster Corporation submitted a topical report requesting approval for a standard design for an independent spent fuel storage facility. The facility is designed to store approximately 1433 tons of spent fuel, or the amount produced by 30 years of operation at a 1300 megawatt plant. No specific locations were proposed, although the design is based on location near a nuclear power facility. We estimated present day cost for such a fuel storage installation to be about $26 million. This does not include client costs associated with the nuclear power facility site preparation. On July 12, 1978 the staff concluded that the proposed approach and conceptual design were acceptable.

On a short-term basis (i.e., prior to 1983) an independent spent fuel storage installation does not appear to be an acceptable alternative based on cost or availability in time to meet the licensee's needs. It is also unlikely that the total environmental impacts of constructing an independent facility and shipment of spent fuel would be less than the minor impacts associated with the proposed modification.

In the long-term, the U. S. Department of Energy (USDOE) is modifying its program for nuclear waste management to include design and evaluation of a retrievable storage facility to provide Government storage at central locations for unreprocessed spent fuel rods. The pilot plant is expected to be completed by late 1980's. It is estimated that the long-term storage facility will start accepting commercial spent fuel in 1995. The design is based on storing the spent fuel in a retrievable condition for a minimum of 25 years. The criteria for acceptance is that the spent fuel must have decayed a minimum of 10 years so it can be stored in dry condition without need for forced air circulation. As an interim alternative to the long-term retrievable storage facility, on October 18, 1977, USDOE announced a new "spent nuclear fuel policy." USDOE will determine industry interest in providing interim fuel storage services on a contract basis. If adequate private storage services cannot be provided, the government will provide interim fuel storage facilities. It was announced by USDOE at a public meeting held on October 26, 1977, that this interim storage is expected to be available in the 1981-1982 time frame. USDOE, through their Savannah River Operations Office, is preparing a conceptual design for a possible spent fuel storage pool of about 5000 MTU capacity. DOE has requested, but has not received, Congressional authorization for design and construction of their interim spent fuel storage facility. Based on our discussions with USDOE personnel, it appears that the earliest such a pool could be licensed to accept spent fuel would be about 1983. The interim facility would be designed for storage of the spent fuel under water. USDOE stated that it was their intent to not accept any spent fuel that had not decayed a minimum of five (5) years.

As indicated in the President's energy policy statement of April 29, 1977, the preferred solution to the spent fuel storage program is to have the nuclear power plants store their spent fuel onsite until the government long-term storage facility is operable, which is now estimated to be about 1995. For those nuclear power plants that cannot store the spent fuel onsite until the permanent long-term storage facility is available, USDOE intends to provide limited interim storage facilities.

This interim storage is not expected to be available before 1983. A National Waste Repository would not be available until approximately 1995. If the Point Beach SFP is not modified as proposed, both Point Beach units would have to shutdown in 1981 since the existing SFP racks would be essentially full. The date that interim storage would be available is not known at this time with sufficient precision to provide for planning. Since these facilities would not be available when needed, it is likely that the Point Beach plant would be forced to shutdown. Therefore, this is not a viable alternative. The impact of plant shutdown as compared with the negligible environmental consequences of the proposed modification is discussed below.

The proposed increase in storage capacity will allow the Point Beach units to operate until 1997 (1994 in the event fuel stored at NFS and Morris must be returned to Point Beach) by which time some form of interim storage is expected to be operable and available to the licensee.

7.3 Storage at Another Reactor Site

Point Beach is the only nuclear power station owned by Wisconsin Electric Power Company. Therefore, Wisconsin Electric does not have an option of storage of Point Beach fuel at another Wisconsin Electric station.* The alternative of storage at another nuclear power station not owned and operated by the licensee is also not realistic. According to a survey conducted and documented by the former Energy Research and Development Administration, up to 46 percent of the operating nuclear power plants will lose the ability to refuel during the period 1975-1984 without additional spent fuel storage pool expansions or access to offsite storage facilities. Thus, the licensee cannot rely on any other power facility to provide additional storage capability except on a temporary basis. If space were available in another reactor facility, the cost would probably be comparable to the cost of storage at a commercial storage facility and would only forestall, for a limited time, shutdown of Point Beach.

In the absence of a general policy regarding interfacility transfer and storage of spent fuel, such action is being decided on a case-by-case basis. In view of this, storage at another reactor site would not afford the timely relief needed here. Therefore, storage at another reactor site is not a realistic alternative to the proposed action.

7.4 Shutdown of Facility

If Point Beach were forced to shutdown for lack of space to store spent fuel, there would be the loss of the economic benefit from the facility (generation of electric energy) and a cost associated with purchase of replacement energy and maintaining the facility in a standby condition far in excess of the cost of the proposed modification.

The licensee estimates that the net increase in operating costs with both units idle would be about $206 million in 1981, or about $560,000 per day. This is consistent with comparable data for other operating reactors. Compared with the estimated total cost of reracking of $4.3 million,** re-racking the pool has a decided cost benefit over plant shutdown.

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* Wisconsin Electric Power Co. has applied for a construction permit for the Haven Nuclear Plant which is scheduled for operation in 1987. This completion schedule is too late to relieve the storage problem at Point Beach.

** This figure is based on direct costs of $2.8 million for new racks, plus $1.5 million spent previously in upgrading the spent fuel cooling system.

7.5 Summary of Alternatives

In summary, the alternatives (1) to (3) described above are presently not available to the licensee or could not be made available in time to meet the licensee's need. Assuming the nonavailability of alternatives (1) to (3), Wisconsin Electric would be forced to shutdown Point Beach if the proposed additional spent fuel storage capacity is not available. Even if available, alternatives (2) and (3) do not provide the operating flexibility of the proposed action and are likely to be more expensive than the proposed modification.

Alternative (4), plant shutdown, would be much more expensive than the proposed action because of the need to provide replacement power. In addition to the economic advantages of the proposed action, we have determined that the expansion of the storage capacity of the SFP for Point Beach would have a negligible environmental impact.

8.0 EVALUATION OF PROPOSED ACTION

8.1 Unavoidable Adverse Environmental Impacts

8.1.1 Physical Impacts

As discussed above, expansion of the storage capacity of the SFP would not result in any significant unavoidable adverse environmental impacts on the land, water, air or biota of the area.

8.1.2 Radiological Impacts

As discussed in Section 5.3, expansion of the storage capacity of the SFP will not create any significant additional radiological effects. The additional total body dose that might be received by an individual or the estimated population within a 50-mile radius is less than 0.0005 mrem/yr and 0.002 man-rem/yr, respectively. These exposures are small compared to the fluctuations in the annual dose this population receives from background radiation and represent an increase of less than 0.1% of the exposures from the plant evaluated in the FES. The total occupational exposure of workers during removal of the present storage racks and installation of the new racks is estimated by the licensee to be less than 8 man-rem. This is a small fraction of the total man-rem burden from occupational exposure at the station. Operation of the plant with additional spent fuel in the SFP is not expected to increase the occupational radiation exposure by more than one percent of the present total annual occupational exposure at this facility.

8.2 Relationships Between Local Short-Term Use of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

Expansion of the storage capacity of the SFP will not change the evaluation of long-term use of the land as described in the FES for Point Beach. In the short-term, the proposed modification would permit the expected benefits (i.e., production of electrical energy) to continue.

8.3 Irreversible and Irretrievable Commitments of Resources

8.3.1 Water, Land and Air Resources

The proposed action will not result in any significant change in the commitments of water, land and air resources as identified in the FES for Point Beach. No additional allocation of land would be made; the land area now used for the SFP would be used more efficiently by adopting the proposed action.

8.3.2 Material Resources

It is not likely that taking 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 action 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. In order to carry out the proposed modifications, the licensee will require racks of stainless steel, silicone rubber and B_4C. These materials are readily available in abundant supply. The amount of material (steel, boron, carbon and silicone rubber) required for the racks for Point Beach is insignificant compared to available supply and does not represent a significant irreversible commitment of natural resources.

The longer-term storage of spent fuel assemblies withdraws the unburned uranium from the fuel cycle for a longer period of time. Its usefulness as a resource in the future, however, is not changed. The provision of longer onsite storage does not result in any cumulative effects due to plant operation since the throughput of materials does not change. Thus the same quantity of radioactive material will have been produced over the life of the plant. This licensing action would not constitute a commitment of resources that would affect the alternatives available to other nuclear power plants or other actions that might be taken by the industry in the future to alleviate fuel storage problems. No other resources need be allocated because the other design characteristics of the SFP remain unchanged.

8.4 Commission Policy Statement Regarding Spent Fuel Storage

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 reactors.* In this notice, it also announced its conclusion that it would not be in the public interest to defer all 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. This has been done as summarized below.

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 reactor cores for Point Beach each contain 121 fuel assemblies. In its submittal of July 19, 1978, Wisconsin Electric presented its estimated schedule for refueling. Each unit is scheduled to be refueled annually, with 36 fuel assemblies scheduled to be replaced. The spent fuel pool was originally designed on the basis that a fuel cycle would be in existence that would only require storage of spent fuel for up to a year prior to shipment to a reprocessing facility. Also, it is prudent engineering practice to reserve space in the SFP to receive an entire reactor core should this be necessary to inspect or repair core internals or because of other operational considerations.

Therefore, the pool storage capacity was originally sized for 1-2/3 cores for the 2 Point Beach units (206 storage locations). Delays in the startup of the General Electric reprocessing plant in 1973 led to the licensee's request for additional storage in March 1975. NRC approval for storage of 351 assemblies was issued in October 1975.

Point Beach Units 1 and 2 received operating licenses in October 1970 and November 1971 and are presently in their 7th and 5th operating cycles, respectively. The SFP currently contains 180 spent fuel assemblies. With the present spent fuel storage racks, Point Beach has room to store the 144 fuel assemblies that are scheduled to be discharged in 1979 and 1980 but not those scheduled to be discharged in the spring of 1981. If expansion of the storage capacity of this SFP is not approved, or if an alternative storage facility for the spent fuel is not located, Point Beach Unit 2 will have to shutdown in the spring of 1981, followed by Unit 1 in the

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* A draft statement was published in March 1978 (NUREG 0404).

fall of 1981. As discussed under alternatives (Section 7.0), an alternate storage facility is not now available. As a long-term solution to the spent fuel storage problem, the Federal government is planning to provide a retrievable repository for spent fuel around 1995.

The proposed licensing action (i.e., installing new racks of a design that permits storing more assemblies in the same space) would allow Point Beach to continue to operate until about 1997* and until the proposed Federal repository is expected to be in operation. The proposed modification will also provide the licensee with additional core offload flexibility which is desirable even if adequate offsite storage facilities hereafter become available to the licensee.

We have concluded that a need for additional spent fuel storage capacity at Point Beach has utility which is independent of the utility of other licensing actions designed to ameliorate a possible shortage of spent fuel capacity.

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 fuel storage capacity?

With respect to this proposed licensing action, we have considered commitment of both material and nonmaterial resources. The material resources considered are those to be used in the expansion of the SFP.

The proposed increased storage capacity of the SFP has been considered to be a nonmaterial resource and was evaluated relative to proposed similar licensing actions at other nuclear power plants, fuel reprocessing facilities and fuel storage facilities. We have determined that the proposed expansion in the storage capacity of the SFP is only a measure to allow for continued operation and to provide operational flexibility at the facility, and will not affect similar licensing actions at other nuclear power plants. Similarly, taking this action would not commit the NRC to repeat this action or a related action in the future.

We conclude that the expansion of the SFP at Point Beach, prior to the preparation of the generic statement, does not constitute a commitment of either material or nonmaterial resources that would tend to significantly foreclose the alternatives available with respect to any other individual licensing actions designed to ameliorate a possible short of spent fuel storage capacity.

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*Assuming no return of fuel from NFS or GE.

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?

Potential nonradiological and radiological impacts resulting from the fuel rack conversion and subsequent operation of the expanded SFP at this facility were considered by the staff.

No environmental impacts outside the spent fuel storage building are expected during removal of the existing racks and installation of the racks. The impacts within this building are expected to be limited to those normally associated with metal working activities and to the controlled, low level occupational radiation exposure to the personnel involved.

The potential nonradiological environmental impact attributable to the additional heat load in the SFP was determined to be negligible compared to the existing thermal effluents from the facility.

We have considered the potential radiological environmental impacts associated with the expansion of the SFP and have concluded that they would not result in radioactive effluent releases that significantly affect the quality of the human environment during either normal operation of the expanded SFP or under postulated fuel handling accident conditions.

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

This Environmental Impact Appraisal and the accompanying Safety Evaluation respond to the questions concerning health, safety and environmental concerns.

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

We have evaluated the impact of deferral of the proposed action as it relates to the public interest. As we have seen, there are significant economic advantages associated with this proposed action, and expansion of the storage capacity of the SFP will have a negligible environmental impact. Therefore, it is clear that the proposed action itself is in the public interest.

Deferral of this action until the publication of the Final Generic Environmental Impact Statement (GEIS) would not be in the public interest. First, there is nothing in the Draft GEIS which is in conflict with the conclusions presented here - that the proposed rack modification is both a cost-effective and environmentally benign approach to the spent fuel storage problem as an interim measure. Further, there is nothing to suggest at this point that the final GEIS will reach any different conclusions in this regard.

Second, while it is true that the Point Beach units do not face certain shutdown until the spring and fall of 1981, there are other factors which weigh in favor of issuing the proposed amendments now. Following the refueling of Unit 1 this fall, the existing SFP will not have sufficient room to accommodate a full core (121 assemblies) should this be necessary to effect repairs, for example, to return a unit to service. Therefore, after this point in time (fall 1979) the Point Beach units face the possibility of shutdown at any time due to lack of a full core reserve in the SFP. While no serious adverse consequences to the public health and safety or the environment would likely result from this action itself, the reactor shutdown would, of course, remove the unit(s) from service, and this in turn could adversely affect Wisconsin Electric's ability to meet electrical energy needs, or force the operation of other plants which are less economical to operate or which have greater environmental impact, and thereby result in substantial harm to the public interest.

Following the spring 1980 refueling, the South pool will be completely full. Further spent fuel discharges would then have to be made into the North pool (which is now empty). This would increase the difficultly of re-racking the North pool and could have an impact on the occupational exposure to workers involved in this operation, which is also undesirable from a public interest standpoint. Based on the foregoing, we conclude that public interest considerations weigh in favor of taking the proposed action now, and that deferral would result in substantial harm to the public interest.

9.0 BENEFIT-COST BALANCE

This section summarizes and compares the cost and the benefits resulting from the proposed modification to those that would be derived from the selection and implementation of each alternative. Table 9.0 presents a tabular comparison of these costs and benefits. The benefit that is derived from four of these alternatives is the continued operation of Point Beach and production of electrical energy. Reprocessing of spent fuel is not an option in the foreseeable future and has no associated cost or benefit. The alternative of storage at another location is not possible at this time nor in the near future except on a short-term emergency basis. The final alternative, plant shutdown, has a high identifiable cost and no associated benefit.[1/]

1/ Obviously plant shutdown would halt further generation of spent fuel which is the source of the proposed action. Whereas preventing further spent fuel generation could arguably be classed as a benefit, this action does not authorize the generation of spent fuel beyond that visualized when the operating license was issued. The need for power and the cost-benefit balance was struck when the FES was published in May 1972, and is not an issue here.

From examination of the table, it can be seen that the most cost-effective alternative is the proposed SFP modification. As evaluated in the preceding sections, the environmental impacts associated with the proposed modification would not be significantly changed from those analyzed in the Final Environmental Statement for Point Beach Nuclear Plant issued in May 1972.

10.0 BASIS AND CONCLUSION FOR NOT PREPARING AN ENVIRONMENTAL IMPACT APPRAISAL

We have reviewed this proposed facility modification relative to the requirements set forth in 10 CFR Part 51 and the Council of Environmental Quality's Guidelines, 40 CFR 1500.6. We have determined, based on this assessment, that the proposed license amendment will not significantly affect the quality of the human environment. Therefore, the Commission has determined that an environmental impact statement need not be prepared and that, pursuant to 10 CFR 51.5(c), issuance of a negative declaration to this effect is appropriate.

Date: April 4, 1979

TABLE 9.0

SUMMARY OF COST-BENEFITS

Alternative	Cost	Benefit
Reprocessing of Spent Fuel	-	None - This alternative is not available either now or in the foreseeable future.
Pool Expansion as Proposed	$3700 per assembly (includes costs of prior spent fuel cooling system modification)	Continued operation and energy generation
Storage at Independent Facility	About $5,400 per assembly/year	Continued operation and energy generation - This alternative will not be available within the next five years.
Storage at Reprocessor's Facility	Approximately $5,400 per assembly/year	Continued operation and energy generation - This alternative is not available now or in the foreseeable future.
Storage at Other Nuclear Plants	----	Continued operation and energy generation - This alternative is not available now nor is it likely to become available in the future.
Reactor Shutdown	Approximately $500,000/day (increased fuel cost)	None

UNITED STATES NUCLEAR REGULATORY COMISSION

DOCKET NOS. 50-266 AND 50-301

WISCONSIN ELECTRIC POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSES AND NEGATIVE DECLARATION

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment Nos. 35 and 41 to Facility Operating Licenses No. DPR-24 and DPR-27 issued to Wisconsin Electric Power Company (licensee) for operation of Point Beach Nuclear Plant, Unit Nos. 1 and 2, located in the town of Two Creeks, Manitowoc County, Wisconsin. The amendments are effective as of the date of issuance and permit an increase in spent fuel storage capacity from 351 to 1502 fuel assemblies.

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.

In response to the Notice of Proposed Issuance of Amendments to Facility Operating Licenses, published in the Federal Register on May 10, 1978 (43 F.R. 20064), the Lakeshore Citizens for Safe Energy (intervenors) requested a hearing and the State of Wisconsin requested to participate as an interested state. On December 13, 1978, the licensee, the intervenor, the State of Wisconsin and the NRC staff requested the Atomic Safety and Licensing Board to issue an order approving the

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withdrawal of intervenor from the proceeding on the basis of a settlement agreement entered into among intervenor, licensee and the NRC staff. By Order of January 8, 1979, the ASLB granted this request and terminated the hearing proceedings.

The Commission has prepared an Environmental Impact Appraisal (EIA) dated April 4 , 1979, and has concluded that an Environmatal Impact Statement for this particular action is not warranted because the actions authorized by these license amendments will not significantly affect the quality of the human environment.

For further details with respect to this action, see (1) the application for amendments dated March 21, 1978, as supplemented and amended June 14, July 19, September 29 and October 10, 1978; January 3, 29 and 30 and February 7, 1979; (2) Amendment No. 35 and 41 to Licenses No. DPR-24 and DPR-27, respectively; and (3) the Commission's related Safety Evaluation and EIA.

All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W. , Washington, D. C., at the University of Wisconsin - Stevens Point Library, Attn: Mr. Arthur M. Fish, Stevens Point, Wisconsin 54481, and at the Manitowoc Public Library, 808 Hamilton Street, Manitowoc, Wisconsin 54220. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland this 4th day of April, 1979.

FOR THE NUCLEAR REGULATORY COMMISSION

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors