Mr. Richard R. Grigg
Chief Nuclear Officer
Wisconsin Electric Power Company
231 West Michigan Street, Room P379
Milwaukee, WI 53201

September 23, 1997

SUBJECT: POINT BEACH NUCLEAR PLANT, UNIT NOS. 1 AND 2 - ISSUANCE OF AMENDMENTS RE: BORON CONCENTRATION CHANGES (TAC NOS. M97793 AND M97794)

Dear Mr. Grigg:

The Commission has issued the enclosed Amendment Nos.180 and 184 to Facility Operating License Nos. DPR-24 and DPR-27 for the Point Beach Nuclear Plant (PBNP), Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated January 16, 1997 (TSCR-191) as supplemented on April 17, August 7, and August 27, 1997.

These amendments change the amounts of boric acid in the refueling water storage tanks, boric acid storage tanks, and safety injection accumulators and increase the lowest permissible concentration of boric acid in the primary coolant during refueling operations. The change was requested to support loading of the 18-month core for Unit 1, Cycle 25.

A copy of our related Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY

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

Docket Nos. 50-266 and 50-301

Enclosures:
1. Amendment No.180 to DPR-24
2. Amendment No.184 to DPR-27
3. Safety Evaluation

cc w/encls: See next page

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DATE	9/9/97		9/9/97		8/18/97		8/22/97		9/5/97		9/22/97	

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

September 23, 1997

Mr. Richard R. Grigg
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cc w/encls: See next page

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10/6/97
62 FR 52596

DATED: September 23, 1997

AMENDMENT NO. 180 TO FACILITY OPERATING LICENSE NO. DPR-24 - POINT BEACH UNIT 1
AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-27 - POINT BEACH UNIT 2

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

WISCONSIN ELECTRIC POWER COMPANY

DOCKET NO. 50-266

POINT BEACH NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 180
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 January 16, 1997, as supplemented on April 17, August 7, and August 27, 1997, 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.

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 of Facility Operating License No. DPR-24 is hereby amended to read as follows:

   B. Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No.180, are hereby incorporated in the license. The licensee shall operate the facility in accordance with Technical Specifications.

3. This license amendment is effective immediately upon issuance. The Technical Specifications are to be implemented within 45 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Linda L. Gundrum

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

Attachment: Changes to the Technical Specifications

Date of issuance: September 23, 1997

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

WISCONSIN ELECTRIC POWER COMPANY

DOCKET NO. 50-301

POINT BEACH NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 184
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 January 16, 1997, as supplemented on April 17, August 7, and August 27, 1997, 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.

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 of Facility Operating License No. DPR-27 is hereby amended to read as follows:

   B. Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No.184, are hereby incorporated in the license. The licensee shall operate the facility in accordance with Technical Specifications.

3. This license amendment is effective immediately upon issuance. The Technical Specifications are to be implemented within 45 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Linda L. Gundrum

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

Attachment: Changes to the Technical Specifications

Date of issuance: September 23, 1997

ATTACHMENT TO LICENSE AMENDMENT NOS. 180 AND 184

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

DOCKET NOS. 50-266 AND 50-301

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

REMOVE	INSERT
15.3.2-2	15.3.2-2
Table 15.3.2-1	Table 15.3.2-1
15.3.3-1	15.3.3-1
15.3.6-7	15.3.6-7
15.3.6-19	15.3.6-19
15.3.8-1	15.3.8-1

D. During power operation, the requirements of 15.3.2-B and C may be modified to allow the following components to be inoperable for a specified time. If the system is not restored to meet the requirements of 15.3.2-B or C within the time period specified, the appropriate reactor(s), except as otherwise noted, shall be placed in the hot shutdown condition within 6 hours and borated to a shutdown margin equivalent of at least 1.0% delta k/k at cold shutdown, no xenon conditions. If the requirements of 15.3.2-B or C are not satisfied within an additional 7 days, the appropriate reactor(s) shall be placed in the cold shutdown condition within the next 30 hours.

1. One of the two operable charging pumps associated with an operating reactor may be removed from service provided a charging pump associated with that reactor is restored to operable status within 72 hours.

2. One of the two boron injection flow paths specified in B.2 or C.2 may be out of service provided two boron injection flow paths are restored to operable status within 72 hours.

3. One of the boric acid transfer pumps designated in B.3 or C.3 may be out of service provided a boric acid transfer pump is restored to operable status within 72 hours.

Basis

The chemical and volume control system provides control of the reactor coolant system boron inventory. This is normally accomplished by using one or more charging pumps in series with one of the two boric acid transfer pumps. Above cold shutdown conditions, a minimum of two boron injection flow paths are required per unit to insure functional capability in the event that an assumed single active failure renders one of the flow paths inoperable. The boration volume available through any flow path is sufficient to provide the required shutdown margin at cold shutdown, xenon-free conditions from any expected operating condition. The volume requirement is associated with boration from just critical, hot zero or full power, peak xenon with control rods at the insertion limit, to xenon-free, cold shutdown with the highest worth control rod assembly fully withdrawn. This requires approximately *26,600 gallons of 2700 ppm borated water from the refueling water storage tank (RWST) or the concentrations and volumes of borated water specified in Table 15.3.2-1 from the boric acid storage tanks (BASTs).

* These RWST parameters are in effect following U1R25 for Unit 1 and U2R24 for Unit 2; and take effect prior to leaving the cold shutdown condition of those outages. Prior to U1R25, the Unit 1 minimum RWST volume and boron concentration values for this basis statement are 24,100 gallons and 2000 ppm respectively. Prior to U2R24, the Unit 2 minimum RWST volume and boron concentration values for this basis statement are 24,100 gallons and 2000 ppm respectively.

Table 15.3.2-1
Boric Acid Storage Tank(s)
Minimum Volume/Temperature/Concentration

Boric Acid Soln Concentration (Wt%)	Minimum Combined Volume (Gal.)[1]		Minimum Temperature (°F)
	Prior to U1R25 or U2R24	After U1R25 or U2R24	
3.00 to <3.50	6860[2]	7950[2]	56.0
3.50 to <4.00	5870[2]	6740[2]	62.5
4.00 to <4.50	5120[2]	5850[2]	69.5
4.50 to <5.50	4550[3]	5180[2]	85.0
5.50 to <6.50	3700[3]	4210[3]	97.0
6.50 to <7.50	3150[3]	3550[3]	107.0
7.50 to <8.50	2720[3]	3070[3]	116.0
8.50 to <9.50	2390	2710[3]	123.5
9.50 to <10.50	2140	2420	131.0
10.50 to <11.50	1930	2190	138.0
11.50 to ≤12.50	1750	2000	145.0

(1) Per unit relying on BAST(s) as source of borated water.
(2) Requires more than one BAST per unit.
(3) Requires more than one BAST for two units combined.

15.3.3 EMERGENCY CORE COOLING SYSTEM, AUXILIARY COOLING SYSTEMS, AIR RECIRCULATION FAN COOLERS, AND CONTAINMENT SPRAY

Applicability:

Applies to the operating status of the Emergency Core Cooling System, Auxiliary Cooling Systems, Air Recirculation Fan Coolers, and Containment Spray.

Objective:

To define those limiting conditions for operation that are necessary: (1) to remove decay heat from the core in emergency or normal shutdown situations, (2) to remove heat from containment in normal operating and emergency situations, and (3) to remove airborne iodine from the containment atmosphere following a postulated Design Basis Accident.

Specification:

A. Safety Injection and Residual Heat Removal Systems

1. A reactor shall not be made critical, except for low temperature physics tests, unless the following conditions associated with that reactor are met:

   a. The refueling water tank contains not less than 275,000 gal. of water with a boron concentration of at least 2700 ppm.*

   b. Each accumulator is pressurized to at least 700 psig and contains at least 1100 ft^3 but no more than 1136 ft^3 of water with a boron concentration of at least 2600 ppm.** Neither accumulator may be isolated.

   c. Two safety injection pumps are operable.

   d. Two residual heat removal pumps are operable.

   e. Two residual heat exchangers are operable.

* This value is in effect following U1R25 for Unit 1 and U2R24 for Unit 2; and takes effect prior to leaving the cold shutdown condition of those outages. Prior to U1R25, the Unit 1 minimum RWST boron concentration is 2000 ppm. Prior to U2R24, the Unit 2 minimum RWST boron concentration is 2000 ppm.

** This value is in effect following U1R25 for Unit 1 and U2R24 for Unit 2; and takes effect prior to leaving the cold shutdown condition of those outages. Prior to U1R25, the Unit 1 minimum SI accumulator boron concentration is 2000 ppm. Prior to U2R24, the Unit 2 minimum SI accumulator boron concentration is 2000 ppm.

B. Internal Pressure

1. If the internal pressure exceeds 3 psig or the internal vacuum exceeds 2.0 psig, the condition shall be corrected within one hour.

2. If the above action cannot be completed within the time specified, place the affected unit in:

   a. hot shutdown within six hours,

      AND

   b. cold shutdown within 36 hours.

C. Positive reactivity changes shall not be made by rod drive motion when the containment integrity is not intact except for the testing of one bank of rods at a time, rod disconnecting, and rod reconnecting provided the reactor is initially subcritical by at least 5% Δk/k.

D. Positive reactivity changes shall not be made by boron dilution when the containment integrity is not intact unless the boron concentration in the reactor is maintained > 2100 ppm*.

* This boron concentration value is in effect following U1R25 for Unit 1 and following U2R24 for Unit 2; and takes effect prior to loading fuel for those outages. Prior to U1R25, the Unit 1 boron concentration value of this specification is 1800 ppm. Prior to U2R24, the Unit 2 boron concentration value of this specification is 1800 ppm.

Unit 1 - Amendment ~~9,86,160~~, 180
Unit 2 - Amendment ~~12,90,164~~, 184

experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

Specifications 15.3.6.C. and D.

The shutdown conditions of the reactor are selected based on the type of activities that are being carried out. When the reactor head is not to be removed, the specified cold shutdown margin of 1% Δk/k precludes criticality under any occurrence. During refueling the reactor is subcritical by 5% Δk/k. Positive reactivity changes for the purpose of rod assembly testing will not result in criticality because no control bank worth exceeds 3%. Positive reactivity changes by boron dilution may be required or small concentration fluctuations may occur during preparation for, recovery from, or during refueling but maintaining the boron concentration greater than 2100 ppm* precludes criticality under these circumstances. 2100 ppm* is a nominal value that ensures 5% shutdown for typical reload cores. Should continuous dilution occur, the time intervals for this incident are discussed in Section 14.1.4 of the FSAR.

References

(1) FSAR - Section 5.1.1
(2) FSAR - Section 14.3.4
(3) FSAR - Section 5.5.2

* This boron concentration value is in effect following U1R25 for Unit 1 and following U2R24 for Unit 2; and takes effect prior to loading fuel for those outages. Prior to U1R25, the Unit 1 boron concentration value of this specification is 1800 ppm. Prior to U2R24, the Unit 2 boron concentration value of this specification is 1800 ppm.

15.3.8 REFUELING

Applicability:

Applies to operating limitations during refueling operations.

Objective:

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

Specifications:

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 loop shall be in operation. However, if refueling operations are affected by the residual heat removal loop flow, the operating residual heat removal loop may be removed from operation for up to one hour per eight hour period.

5. During reactor vessel head removal and while loading and unloading fuel from the reactor, a minimum boron concentration of 2100 ppm* shall be maintained in the primary coolant system.

* This boron concentration value is in effect following U1R25 for Unit 1 and following U2R24 for Unit 2; and takes effect prior to loading fuel for those outages. Prior to U1R25, the Unit 1 boron concentration value of this specification is 1800 ppm. Prior to U2R24, the Unit 2 boron concentration value of this specification is 1800 ppm.

Unit 1 - Amendment No. ~~35,66, 96~~, 180
Unit 2 - Amendment No. ~~41,71,100~~, 184

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 180 AND 184 TO

FACILITY OPERATING LICENSE NOS. 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 dated January 16, 1997 (TSCR-191), as supplemented on April 17, August 7, and August 27, 1997, the Wisconsin Electric Power Company (the licensee) requested amendments to the Technical Specifications (TS) appended to Facility Operating Licenses Nos. DPR-24 and DPR-27 for the Point Beach Nuclear Plant, Unit Nos. 1 and 2. Specifically, the proposed changes would increase the minimum volume and boron concentration for the refueling water storage tanks (RWSTs) from 24,100 gallons at 2000 parts per million (ppm) to 26,600 gallons at 2700 ppm. The minimum required boric acid storage tanks (BASTs) volume, which ranges from 6860 gallons for a minimum 3.0 weight percent solution to 1750 gallons for a minimum 11.5 weight percent solution, would be increased to 7950 gallons and 2000 gallons, respectively. The minimum boron concentration in the safety injection accumulators would be increased from 1800 ppm to 2100 ppm. The minimum boron concentration for the primary coolant system during refueling operations would be increased from 1800 ppm to 2100 ppm. The minimum boron concentration for the primary coolant system during positive reactivity changes, when the containment integrity is not intact, would be increased from 1800 ppm to 2100 ppm. These increases in boron concentration are necessary to accommodate shutdown margin and safety analysis requirements based on preliminary evaluation associated with an extension of the reload cycle from 12 months to 18 months for Unit 1 following refueling outage U1R25, and for Unit 2 following refueling outage U2R24.

The April 17, August 7, and August 27, 1997, letters provided clarifying information within the scope of the original application and did not change the staff's initial proposed no significant hazards considerations determination.

2.0 EVALUATION

The staff reviewed the proposed changes for their impact on accident analyses and on the effects on the increase in boron concentration for removal of iodine from the post-accident containment atmosphere, corrosion of components exposed to boric acid solutions,

precipitation of boric acid from the solutions exposed to low temperatures, and precipitation of boric acid in the core region during a post-loss-of-coolant accident (LOCA) safety injection. The licensee proposes to modify the following TS to account for higher inventories of boron in the plant:

- TS Table 15.3.2-1 and TS 15.3.2 Bases in the TS would be revised to increase the amount of boron stored in the BASTs, by raising the minimum volume of the solution in the tank from 6860 gallons to 7950 gallons for boric acid concentrations of 3 to <3.5 weight percent (w/o), from 1750 gallons to 2000 gallons for boric acid concentrations of 11.5 to ≤12.5 w/o, and proportionally for the intermediate concentrations.

- TS 15.3.3.A.1.a and TS 15.3.2 Bases would be revised to raise the minimum boron concentration in the RWST from 2000 ppm to 2700 ppm. Also, the minimum volume of the solution required for maintaining proper reactivity margin would be increased from 24,100 gallons to 26,600 gallons.

- TS 15.3.3.A.1.b would be revised to raise the minimum boron concentration in the SI accumulators from 2000 ppm to 2600 ppm.

- TS 15.3.6.D and TS 15.3.6 Bases would be revised to increase boron concentration in the primary coolant during positive reactivity changes, when containment integrity is not intact, from 1800 ppm to 2100 ppm.

- TS 15.3.8 would be revised to increase boron concentration in the primary coolant during refueling operation from 1800 ppm boron to 2100 ppm boron.

2.1 Accident Analyses

Preliminary evaluations associated with the cycle extension to 18 months performed by Westinghouse indicate that an increase in boron concentration is necessary to accommodate shutdown margin and safety analysis requirements associated with the cycle extension. The boration volume available through any flow path must be sufficient to provide the required shutdown margin at cold shutdown, xenon-free conditions from any expected operating condition. The volume requirement is associated with boration from just critical, hot zero power, peak xenon conditions with control rods at the insertion limit, to xenon-free, cold shutdown conditions with the highest worth control rod assembly fully withdrawn. The preliminary evaluations indicate that the revised parameters for the RWST (26,000 gallons of 2700 ppm borated water) or the revised parameters for borated water in the BASTs specified in TS Table 15.3.2-1 are sufficient to ensure adequate shutdown margin.

Westinghouse also performed preliminary evaluations for the licensee to determine the potential effects of the new core designs resulting from the increased energy requirements for implementing 18-month core operating cycles. These preliminary evaluations indicate that the LOCA and the boron dilution events are the only analyses that specifically require changes to boron concentration parameters. The evaluation did not address all the effects of the anticipated core design. The increased reactor coolant system (RCS) boron will result in a more positive (less negative) moderator temperature coefficient (MTC). Therefore, prior to

operation with a revised core configuration, the licensee confirmed that all of the accident analyses will be evaluated for continued applicability as part of the reload safety evaluation process. The licensee confirmed that, if any boron concentration limits are found to be inadequate to demonstrate acceptable accident response, the TS will be changed at that time.

2.1.1 LOCA Analysis

The LOCA was evaluated to determine the post-LOCA subcriticality limit with typical 18-month cycle core designs. The RWST and accumulator boron concentrations were varied to establish the minimum required boron concentrations to maintain at least 100 ppm of margin to the required post-LOCA subcriticality limit. However, one effect of boration during a LOCA is the progressive increase over time of the boron concentration in the core. This occurs because the water vaporizes out of the break and leaves behind the boron it originally contained. If the concentration exceeds a critical value, boric acid can crystallize in the core and precipitate out of solution. The concern is that the precipitation of boric acid crystals could block core cooling. The licensee has implemented emergency operating procedures to ensure simultaneous cold leg and reactor vessel injection within 14 hours of a LOCA. Westinghouse has determined that this amount of time assures boron solubility within the core. The licensee has confirmed that, if the core reload safety evaluation identifies a more limiting time requirement, the emergency operating procedures will be revised accordingly.

2.1.2 Boron Dilution Events

The proposed TS change to the minimum boron concentration of the primary coolant system for refueling operations has been evaluated and found to preserve the 5% subcriticality margin and provide the necessary response time for postulated boron dilution events. The boron dilution event during refueling must allow at least a 30-minute operator response time from the recognition of an audible high count rate signal to isolate the dilution source. The proposed change in the refueling boron concentration from 1800 ppm to 2100 ppm will ensure that adequate operator response time remains available during this dilution event.

2.2 Iodine Removal

After an accident in which core damage occurs, radioactive iodine would be released from the damaged fuel. To prevent it from escaping to the outside, the radioactive iodine should be removed from the containment atmosphere and kept dissolved in the containment water. This process is significantly enhanced by maintaining high pH. Therefore, any reduction of pH may have a negative effect on the post-accident dose rates. The licensee analyzed the impact of pH reduction on several iodine removal and retention mechanisms.

2.2.1 Retention of Iodine in the RCS During a Fuel Handling Accident

Increasing boric acid concentration in the primary coolant during refueling operations will result in a lower pH. This could have some effect on retention in the primary coolant of the

iodine released from damaged fuel rods during a fuel handling accident. However, the proposed increase of boron concentration in the primary coolant from 1800 to 2100 ppm will result in a very small pH drop which will cause only an insignificant change of the primary coolant's iodine retention capability. There is no concern, therefore, that any significant amount of radioactive iodine could be released into the environment.

2.2.2 Removal of Iodine From the Containment Atmosphere By Sprays

As a consequence of increasing boric acid concentration in the RWST, the containment spray solution during the injection phase will have a lower pH for the corresponding amount of sodium hydroxide added to it. Although the pH value will drop from its originally specified range of 9.0 to 10.0, the licensee has calculated that it still will remain above 8.5 which is adequate to ensure proper removal of iodine from the containment atmosphere.

2.2.3 Retention of Iodine in the Containment Sump Water

The pH of the containment sump water should be maintained at a sufficiently high value to retain all the iodine removed from the containment atmosphere by sprays. In the containment sump water the pH value is determined by the amount of boric acid transferred from the RWST, SI, and BAST tanks and the primary coolant system. After the proposed modification all these sources will have more boric acid and the resultant pH of the sump solution will decrease. However, the licensee has determined that the decrease will be relatively small and the minimum pH will remain at a value of about 7.5. According to Section 6.5.2 of the Standard Review Plan, when pH is maintained at a higher than 7 value, sump water has satisfactory iodine retention capability.

2.3 Effects on Materials Exposed to Borated Water

At the current concentrations of boric acid, corrosion of the components exposed to boric acid solution is negligible. The proposed increase in boric acid concentration in the storage tanks will result in a minimal decrease in pH and it is not expected that this change will result in any significant increase in corrosion of austenitic stainless steel or other corrosion-resistant materials. In the containment sump the components are exposed to boric acid solution whose pH is 7.5 or higher and at this value no corrosion of metallic surfaces will occur. Also, the equipment within the containment was qualified down to pH 7.5 and will not be affected by the increased concentration of boric acid.

2.4 Solubility of boric acid in RWST and SI Tanks

After the proposed increase in boron inventory, the highest concentration of boric acid in the storage tanks will be well below its solubility limits (2.48 w/o) at 32 °F which is a conservative estimate of the lowest temperature to which these tanks would ever be exposed. Therefore, there is no possibility for boric acid precipitation in these tanks or in the associated pipe lines.

2.5 Boric Acid Precipitation in the Post-LOCA Core

As a consequence of increasing boric acid concentration in the RWST and SI tanks that provide the post-LOCA safety injection, the time when boric acid starts to precipitate in the core may be decreased. This will require a shorter switching time to simultaneous hot and cold leg injection. The presently calculated switching time is 14 hours and the licensee found that the change caused by increasing boric acid concentration is insignificant. However, as a safety precaution, the switching time should be verified for each new core reload.

2.6 Summary

The staff has reviewed the licensee's submittal on higher boric acid concentrations in the RWSTs, BASTs, SI accumulators, and in the primary coolant during refueling operation, and in the primary coolant when reactivity changes are made without establishing containment integrity. The licensee proposes to introduce these changes to offset higher reactivity fuel that it is planning to use in the future. In the submittal, the licensee has analyzed different plant operations that may be impacted by higher boron concentrations and found that none of them will cause reduction of the safety of the plant. The staff has evaluated the licensee's analyses and performed independent verifications. Based on this evaluation, the staff concludes that the increase in boric acid concentration proposed by the licensee will not degrade plant safety. The proposed increase in boron inventory is, therefore, acceptable. The staff's evaluation has indicated that the licensee's analyses support PBNP's assertion that the proposed increase in boric acid concentration will not affect the performance of the plant and will not cause a decrease in the plant's safety functions.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Wisconsin State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

These amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluent that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously published a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding (62 FR 19836). Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

5.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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