

September 27, 2005

Mr. Dennis L. Koehl  
Site Vice President  
Point Beach Nuclear Plant  
Nuclear Management Company, LLC  
6610 Nuclear Road  
Two Rivers, WI 54241-9516

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 - ISSUANCE OF  
AMENDMENTS TO CHANGE TECHNICAL SPECIFICATION SURVEILLANCE  
REQUIREMENTS 3.8.4.6 AND 3.8.4.7, DC SOURCES-OPERATING  
(TAC NOS. MC3569 AND MC3570)

Dear Mr. Koehl:

The Commission has issued the enclosed Amendment No. 221 to Facility Operating License No. DPR-24 and Amendment No. 227 to Facility Operating License No. DPR-27 for the Point Beach Nuclear Plant, Units 1 and 2, respectively. The amendments consist of changes to Technical Specification (TS) Surveillance Requirements (SR) 3.8.4.6 and SR 3.8.4.7, "DC Sources - Operating," in response to your application dated April 8, 2004, as supplemented by letters dated November 15, 2004, July 15, and August 8, 2005.

The amendments revise battery charger current values, add a new allowance for verifying battery charger capacity, and remove a restriction on the conduct of a modified performance discharge test.

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,

**/RA/**

Harold K. Chernoff, Sr. Project Manager, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-266 and 50-301

Enclosures: 1. Amendment No. 221 to DPR-24  
2. Amendment No. 227 to DPR-27  
3. Safety Evaluation

cc w/encls: See next page

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TS Accession Number: ML052710091 NRR-100  
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NUCLEAR MANAGEMENT COMPANY, LLC

DOCKET NO. 50-266

POINT BEACH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 221  
License No. DPR-24

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Nuclear Management Company, LLC (the licensee), dated April 8, 2004, as supplemented by letters dated November 15, 2004, July 15 and August 8, 2005, 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. 221, are hereby incorporated in the license. The licensee shall operate the facility in accordance with Technical Specifications.

3. This license amendment is effective as of the date of issuance and shall be implemented within 45 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

L. Raghavan, Chief, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of issuance: September 27, 2005

NUCLEAR MANAGEMENT COMPANY, LLC

DOCKET NO. 50-301

POINT BEACH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 227  
License No. DPR-27

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Nuclear Management Company, LLC (the licensee), dated April 8, 2004, as supplemented by letters dated November 15, 2004, July 15 and August 8, 2005, 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. 227, are hereby incorporated in the license. The licensee shall operate the facility in accordance with Technical Specifications.

3. This license amendment is effective as of the date of issuance and shall be implemented within 45 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

L. Raghavan, Chief, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of issuance: September 27, 2005

ATTACHMENT TO LICENSE AMENDMENT NO. 221

TO FACILITY OPERATING LICENSE NO. DPR-24

AND LICENSE AMENDMENT NO. 227

TO FACILITY OPERATING LICENSE NO. DPR-27

DOCKET NOS. 50-266 AND 50-301

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

3.8.4-2

3.8.4-3

INSERT

3.8.4-2

3.8.4-3



SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 221 TO FACILITY OPERATING LICENSE NO. DPR-24  
AND AMENDMENT NO. 227 TO FACILITY OPERATING LICENSE NO. DPR-27  
NUCLEAR MANAGEMENT COMPANY, LLC  
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2  
DOCKET NOS. 50-266 AND 50-301

1.0 INTRODUCTION

By letter to the Nuclear Regulatory Commission (NRC, the Commission) dated April 8, 2004 (Agency Documents Access and Management System (ADAMS) Accession No. ML041040015), as supplemented by letters dated November 15, 2004 (ADAMS Accession No. ML043280448), July 15, 2005 (ADAMS Accession No. ML052070598), and August 8, 2005 (ADAMS Accession No. ML052280318), Nuclear Management Company, LLC (the licensee) submitted a request for license amendments to the Technical Specifications (TSs) for Point Beach Nuclear Plant (PBNP), Units 1 and 2. The proposed amendments consist of changes to Surveillance Requirements (SRs) 3.8.4.6 and 3.8.4.7, "DC Sources - Operating." Specifically, the proposed amendments would revise the values for battery charger currents, add a new allowance for the method of verifying battery charger capacity, and remove a restriction on the conduct of a modified performance discharge test.

The November 15, 2004, July 15 and August 8, 2005, supplemental letters provided additional information that clarified the application, did not expand the scope of the application originally noticed, and did not change the NRC Staff's original proposed no significant hazards consideration determination as published in the *Federal Register*.

2.0 REGULATORY EVALUATION

The following documents were used as part of the NRC staff's review of the application:

PBNP General Design Criteria (GDC)-2, "Performance Standards," as discussed in the PBNP Final Safety Analysis Report (FSAR), Section 1.3, requires, in part, that systems be designed to performance standards to withstand forces that might reasonably be imposed by the occurrence of extraordinary natural phenomenon.

PBNP GDC-39, "Emergency Power," as discussed in the PBNP FSAR, Section 1.3, requires, in part, that an emergency power source shall be provided and designed with adequate independency, redundancy, capacity, and testability to permit the functioning of the engineered safety features (ESFs) and protection systems. This power source shall provide this capacity assuming a failure of a single active component.

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36(c)(3), "Technical Specifications," requires a licensee's TSs to have SRs relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operations are within safety limits, and that the limiting conditions for operation will be met.

Regulatory Guide 1.32, "Criteria For Safety-Related Electric Power Systems For Nuclear Power Plants," which provides a method acceptable to the NRC staff of complying with GDC-17 and GDC-18 with respect to design, operation, and testing of safety-related electric power systems of all types of nuclear power plants.

### 3.0 TECHNICAL EVALUATION

The PBNP direct current (dc) electrical power system provides the alternating current (ac) emergency power system with control power. It also provides both motive and control power to selected safety-related equipment and preferred ac vital instrument bus power through the inverters. As required by the PBNP General Design Criteria, the dc electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure.

The safety-related 125 volt dc system consists of four main distribution buses, in addition to two swing 125 volt dc buses that are each capable of supplying one of the four main 125 volt dc buses. Each of the four main distribution buses is powered by a battery charger and a station battery. The battery chargers, which receive power from the 480 volt ac ESF system, supply the normal dc loads and maintain the battery in a fully charged condition. In addition to the four main battery chargers, PBNP has two swing battery chargers that are available through the swing dc distribution buses. Additionally, PBNP has a swing safety-related battery that is connected to one of the swing dc distribution buses. This swing battery is capable of being aligned to any one of the four main distribution buses to take the place of the normal battery. Mechanical interlocks exist on the swing dc distribution buses to prevent paralleling of redundant dc buses.

The PBNP station batteries have been sized to carry the expected shutdown loads following a plant trip/loss-of-coolant accident and loss of offsite power, or following a station blackout for a period of one hour, without battery terminal voltage falling below 105 volts and while maintaining sufficient operating voltage at the loads. The swing station battery has been sized to provide an equivalent voltage at each of the four main distribution buses. The swing battery chargers and the swing battery allow the normally on-line battery chargers and batteries to be removed from service for maintenance or testing.

Each 125 volt dc battery is separately housed in a ventilated room apart from its charger and distribution centers. Each subsystem is located in an area separated physically and electrically from the other subsystems to ensure that a single failure in one subsystem does not cause a failure in a redundant subsystem. There is no sharing between redundant Class 1E distribution subsystems.

The licensee stated that each dc electrical power subsystem at PBNP has ample power output capacity for the steady-state operation of connected loads required during normal operation, while at the same time maintaining its battery bank fully charged. Each battery charger has

sufficient capacity to restore the battery from the design minimum charge to its fully charged state within 24 hours while supplying normal steady-state loads as discussed in the PBNP Final Safety Analysis Report (FSAR). In the PBNP Technical Specifications Bases Section B 3.8.4, the licensee has committed to the guidance specified in Regulatory Guide 1.32 which, in part, states that the capacity of the battery charger supply be based on the largest combined demands of the various steady-state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the plant during which these demands occur.

The proposed amendments would modify PBNP TS SRs 3.8.4.6 and 3.8.4.7, "DC Sources - Operating," to revise the values for battery charger currents, add a new allowance for the method of verifying battery charger capacity, and remove a restriction on the conduct of a modified performance discharge test.

### 3.1 Battery Charger Currents

The purpose of SR 3.8.4.6 is to verify the design capacity of the battery chargers. The licensee stated that the surveillance is performed by connecting sufficient resistive load to verify that the battery charger is operating at its as-left current limit setting without exceeding the supply breaker capacity even with increased loading.

SR 3.8.4.6 currently requires the licensee to verify that Battery Chargers D-07, D-08, and D-09 are each capable of supplying greater than or equal to 203 amperes at greater than or equal to 125 volts for greater than or equal to 8 hours, and that Battery Chargers D-107, D-108, and D-109 are each capable of supplying greater than or equal to 273 amperes at greater than or equal to 125 volts for greater than or equal to 8 hours.

The proposed revision to SR 3.8.4.6 would require the licensee to verify that Battery Chargers D-07, D-08, and D-09, while operating at the current limit setting, are each capable of supplying greater than or equal to 320 amperes at greater than or equal to the minimum established float voltage for greater than or equal to 8 hours, and that Battery Chargers D-107, D-108, and D-109, while operating at the current limit setting, are each capable of supplying greater than or equal to 420 amperes at the minimum established float voltage for greater than or equal to 8 hours. The ampere and voltage requirements are based on the design capacity of the chargers and the settings of the current limiters. The proposed time period is sufficient for the charger temperature to have stabilized and to have been maintained for at least 2 hours.

The licensee stated that the minimum current needed to supply the largest combined demands of the various continuous steady-state loads and to recharge the battery from the design minimum charge state to the fully charged state for Battery Chargers D-07, D-08 and D-09 is 283 amperes dc. The maximum current that these charger systems are limited to is 375 amperes dc. Based on these limits, the licensee selected a nominal current limit setting of 350 amperes. A minimum current limit setting of 320 amperes was selected, which is 37 amperes dc above the minimum value needed per PBNP Calculation 2003-0046, "Battery Chargers Sizing and Current Limit Setpoints."

The licensee stated that the minimum current needed to supply the largest combined demands of the various continuous steady-state loads and to recharge the battery from the design minimum charge state to the fully charged state for Battery Chargers D-107, D-108 and D-109

is 283 amperes dc. The maximum current that these charger systems are limited to is 497 amperes dc. Based on these limits, the licensee selected a nominal current limit setting of 450 amperes. A minimum current limit setting of 420 amperes was selected, which is 137 amperes dc above the minimum value needed per PBNP Calculation 2003-0046, "Battery Chargers Sizing and Current Limit Setpoints."

The licensee additionally proposed replacing the specified voltage (125 volts) with the phrase, "minimum established float voltage," and to relocate the specific limiting value for the minimum operating battery charging float voltage to the TS Bases, which are under the change control of 10 CFR 50.59, "Changes, tests, and experiments."

### Evaluation and Conclusion

The minimum allowed amperage values provide sufficient margin to the required minimum current value and thereby provide assurance that the battery chargers will be capable of supplying the required loads under accident conditions. The ampere requirements coupled with the settings of the current limiters also provide assurance that the battery chargers will be capable of supplying the largest combined demands of the various continuous steady-state loads and recharge the battery from the design minimum charge state to the fully charged state, while staying within the capacity of the supply breakers

Based on the discussion provided above, the NRC staff finds the proposed minimum amperage values acceptable to maintain compliance with requirements governing the design and operation of the dc electrical power system and provide adequate assurance of system operability.

The NRC staff finds that replacing the specified voltage (125 volts) with the phrase, "minimum established float voltage" is acceptable. The TS will require the battery charger to supply battery terminal voltage greater than or equal to the minimum established float voltage. The voltage requirements are based on the design capacity of the battery chargers. Additionally, the battery manufacturer establishes this voltage to provide the optimum charge on the battery. This voltage will maintain the battery plates in a condition that supports maintaining and extending the battery grid life, thus providing adequate assurance of system operability and ensuring the battery will be capable of providing its design safety function. Control of this voltage limit in the PBNP TS Bases is also acceptable.

### 3.2 Alternate Method of Verifying Battery Charger Capacity

The licensee proposed an additional allowance for satisfying SR 3.8.4.6 that would allow an actual in-service demonstration that the battery charger can recharge the battery to the fully charged state within 24 hours while supplying the largest combined demands of the various steady-state loads, after a battery discharge to the bounding design-basis event discharge state.

### Evaluation and Conclusion

This is an alternate method for verifying the design capacity of each battery charger. The proposed wording accurately reflects the required minimum battery charger design capacity as

it is detailed in the PBNP FSAR. As described in the revised PBNP TS Bases for SR 3.8.4.6, this alternate test requires that each battery charger be capable of recharging the battery after a service test, coincident with supplying largest combined demands of the various continuous steady-state loads (irrespective of the status of the plant during which these demands occur). The duration of this test may be longer than the charger sizing criteria since the battery recharge is affected by float voltage, temperature, and the exponential decay in charging current.

Based on this information, the NRC staff finds the proposed change acceptable. The change meets the intent of the existing test and allows for an in-place demonstration of the charger capability, thereby minimizing the time when the charger would be disconnected from the dc bus.

### 3.3 Alternate Method for Conducting Battery Discharge Test

Stationary batteries are subjected to periodic inspections and testing to optimize the life and performance of permanently installed batteries used for standby power applications. The inspections and testings, based on Institute of Electrical and Electronics Engineers (IEEE) standards, provide guidance to determine when batteries should be replaced. Recommended practice is to subject the batteries to service, performance, and modified performance tests at specific frequencies.

The service test (SR 3.8.4.7) is a special battery test to determine if the battery, as found, will meet the duty cycle requirements of the dc electrical power system. The performance test is a constant current or constant power capacity test to detect and determine any change in the capacity due to age and usage. The modified performance test is a test of the battery, as found, to determine the capacity and the ability of the battery to meet the duty cycle. It is permissible to perform a modified performance test in lieu of the service test if the modified performance test's discharge rate envelopes the duty cycle of the service test.

The present NOTE to SR 3.8.4.7 in the PBNP TSs states that the modified performance test may be performed "once per 60 months" in lieu of a service test. The licensee has proposed deleting the "once per 60 months" restriction.

### Evaluation and Conclusion

The proposed change is consistent with IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," which states that a modified performance test can be used in lieu of a service test at any time. This change permits the modified performance test to replace a service test since the modified performance test envelopes the duty cycle of the service test.

The NRC staff finds the proposed change acceptable. The change does not involve a design change or physical change to the equipment, there will be no change in the method of operation, and the modified performance test satisfies all of the performance objectives of the service test.

### 4.0 STATE CONSULTATION

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

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes requirements with respect to installation or use of a facility's components located within the restricted areas as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (69 FR 51489). Accordingly, the amendment meets 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 the amendment.

#### 6.0 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: M. McConnell

Date: September 27, 2005



Point Beach Nuclear Plant, Units 1 and 2

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