November 15, 2004

NRC 2004-0120
10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Point Beach Nuclear Plant Units 1 and 2
Dockets 50-266 and 50-301
License Nos. DPR-24 and DPR-27

Response to Request for Additional Information Regarding
License Amendment Request 239, Technical Specification Surveillance Requirements
SR 3.8.4.6 and SR 3.8.4.7, "DC Sources – Operating"

Reference: Letter from NMC to NRC dated April 8, 2004 (NRC 2004-0034)

In the reference, Nuclear Management Company, LLC (NMC), submitted a request for an amendment to the Technical Specifications (TS) for Point Beach Nuclear Plant, Units 1 and 2, in accordance with the provisions of 10 CFR 50.90. The proposed amendment would revise TS Surveillance Requirements (SR) 3.8.4.6 and 3.8.4.7, "DC Sources – Operating," to revise the values for battery charger amperage, 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.

During a telephone conference between NRC staff and NMC personnel on September 29, 2004, the staff requested additional information (RAI) to complete its evaluation. The enclosure provides the NMC response to the staff's questions.

This letter contains no new commitments or changes to existing commitments.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on November 15, 2004.

Dennis L. Koehl
Site Vice-President, Point Beach Nuclear Plant
Nuclear Management Company, LLC

A001

Enclosure

cc: Regional Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
PSCW

ENCLOSURE

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT REQUEST 239, TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENTS SR 3.8.4.6 AND SR 3.8.4.7, "DC SOURCES – OPERATING"

The following information is provided in response to the Nuclear Regulatory Commission (NRC) staff's request for additional information (RAI) regarding License Amendment Request 239.

The NRC staff's questions are restated below, with the Nuclear Management Company (NMC) response following.

NRC Question 1:

In comparison to the current testing limits for Point Beach Nuclear Plant (PBNP) Technical Specification (TS) Surveillance Requirement (SR) 3.8.4.6, provide a discussion on how the proposed testing limits were established.

NMC Response:

The current testing limits for TS SR 3.8.4.6 were based upon the design capacity of the battery chargers having to recharge a battery from the design minimum charge state to the fully charged state while carrying normal loads.

However, the amperage values currently specified in SR 3.8.4.6 had been found to be inconsistent with the assumptions that were used for battery loading and associated charging time. The proposed change clarifies the loading assumptions and corrects the discrepancy between the TS Bases and the PBNP Final Safety Analysis Report (FSAR), Section 8.7.

As stated in the original submittal, the proposed SR 3.8.4.6 verifies that battery chargers D-07, D-08, and D-09 are each able to supply at least 320 amps and that battery chargers D-107, D-108, and D-109 are each able to supply at least 420 amps, for a period of eight hours. These test criteria are based on the required design capacity of the chargers.

Battery chargers D-07, D-08, and D-09 are physically capable of supplying 350 amps (limited by the current limit setpoint), while battery chargers D-107, D-108, and D-109 are physically capable of supplying 450 amps (limited by the current limit setpoint).

The proposed testing limits were established by selecting a required minimum amperage value for each battery charger that was 30 amps below its respective current limit setpoint. This provides ample margin between the set capacity of the charger and the surveillance requirements to account for drift in the charger output from the setpoint. These setpoints were also based on not exceeding the current rating of the 480 VAC charger supply breakers.

The proposed change replaces the previous amperage values with the appropriate specification for all six battery chargers. The proposed testing limits also allow performance of testing that better matches the description within the licensing basis as discussed in FSAR Section 8.7. Additional related information appears in the response to questions 2 and 3 below.

PBNP Calculation 2003-0046, "Battery Chargers' Sizing and Current Limit Setpoint," documents the minimum battery charger amperage to meet the licensing basis requirement.

NRC Question 2:

The purpose of SR 3.8.4.6 is to verify the design capacity of the battery chargers. Describe how the proposed testing limits, which are below the actual design ratings of the battery chargers, would satisfy the intent of SR 3.8.4.6.

NMC Response:

SR 3.8.4.6 is meant to verify the design capacity of the battery chargers, not the physical rating of the chargers. The design capacity of each battery charger is the current that it must be able to supply to recharge its respective partially discharged battery within 24 hours while carrying normal loads.

The electrical current limit setpoints of battery chargers D-07, D-08, and D-09 are 350 amps and the electrical current limit setpoints of battery chargers D-107, D-108, and D-109 are 450 amps. These setpoints were chosen based on not exceeding the current rating of the 480 VAC charger supply breakers. The required minimum amperage value for each battery charger was selected to be 30 amps below its respective current limit setpoint. This provides ample margin between the set capacity of the charger and the surveillance requirements to account for drift in the charger output from the setpoint.

The minimum current that is required to meet the licensing basis requirements is less than the current specified in the proposed SR 3.8.4.6. Since the minimum amperage values for each battery charger meet or exceed the current necessary to recharge the partially discharged batteries while carrying their normal loads, the proposed limits for SR 3.8.4.6 will verify the design capacity of the battery chargers.

NRC Question 3:

With regards to SR 3.8.4.6, what constitutes 'normal loads' at Point Beach? Describe any differences between '... while carrying normal loads...' and the wording provided in

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With regards to SR 3.8.4.6, what constitutes 'normal loads' at Point Beach? Describe any differences between '... while carrying normal loads...' and the wording provided in TS Task Force (TSTF) - 360, Rev. 1, and Regulatory Guide (RG) 1.32 (i.e., ... while supplying the largest combined demands of the various steady state loads...).

NMC Response:

The proposed SR 3.8.4.6 takes credit for a battery charger being able to recharge its associated partially discharged battery within 24 hours while carrying normal loads.

Point Beach has empirically determined the largest combined demands of the various steady state loads by monitoring the DC output current from battery chargers D-07, D-08, D-09, D-107, D-108, and D-109 over a two-year period. The maximum steady state DC bus loads have been shown to be less than 175 amperes DC (ADC).

After the battery chargers are restored following a discharge event, DC system loading is approximately the same value (175 ADC) as it was prior to the discharge. This is due to the fact that major DC loads, such as feedwater pump bearing oil pumps, main turbine bearing oil pumps, and main generator seal oil pumps would be placed on the non-vital batteries.

Major loads, such as emergency diesel field flash and most breaker actuations, are intermittent and occur in the first hour when the batteries are supplying the load. The instrumentation loads do not significantly change following a Design Basis Accident (DBA) since the instrumentation remains energized. For conservatism, an additional load of 25 ADC is assumed to account for annunciators in the control room that are lit. The annunciators are incandescent bulbs and LEDs, which have a power demand well below the 25 ADC assumption. An additional 50 ADC load is assumed for further conservatism for post-DBA loads. The sum of these loads (175 ADC, 25 ADC, and 50 ADC) is 250 ADC. For purposes of SR 3.8.4.6, 250 ADC constitutes the maximum value for 'normal loads' at Point Beach.

The required testing current is calculated by adding 250 ADC to the minimum current necessary to recharge the battery in 24 hours (as documented in PBNP Calculation 2003-0046).

Although Point Beach has not performed a measurement of each possible individual steady state load and quantitatively calculated the largest combined demands of the various steady state loads, the DC system loads have been shown to be less than 250 ADC. The conservatisms employed in determining the required testing current are sufficient to bound the anticipated loads. Since the current limit setpoints of the DC bus chargers are greater than 250 ADC, plus the minimum current to recharge the battery within 24 hours, the intent of SR 3.8.4.6 is satisfied.

As a result, PBNP staff has concluded that the calculated PBNP testing current bounds the intent of the 'largest combined demands of the various steady state loads' statement in TSTF-360.

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Point Beach has empirically determined the largest combined demands of the various steady state loads by monitoring the DC output current from battery chargers D-07, D-08, D-09, D-107, D-108, and D-109 over a two-year period. The maximum steady state DC bus loads have been shown to be less than 175 amperes DC (ADC).

After the battery chargers are restored following a discharge event, DC system loading is approximately the same value (175 ADC) as it was prior to the discharge. This is due to the fact that major DC loads, such as feedwater pump bearing oil pumps, main turbine bearing oil pumps, and main generator seal oil pumps would be placed on the non-vital batteries.

Major loads, such as emergency diesel field flash and most breaker actuations, are intermittent and occur in the first hour when the batteries are supplying the load. The instrumentation loads do not significantly change following a Design Basis Accident (DBA) since the instrumentation remains energized. For conservatism, an additional load of 25 ADC is assumed to account for annunciators in the control room that are lit. The annunciators are incandescent bulbs and LEDs, which have a power demand well below the 25 ADC assumption. An additional 50 ADC load is assumed for further conservatism for post-DBA loads. The sum of these loads (175 ADC, 25 ADC, and 50 ADC) is 250 ADC. For purposes of SR 3.8.4.6, 250 ADC constitutes the maximum value for 'normal loads' at Point Beach.

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As a result, PBNP staff has concluded that the calculated PBNP testing current bounds the intent of the 'largest combined demands of the various steady state loads' statement in TSTF-360.

NRC Question 4:

If the proposed changes to SR 3.8.4.6 were approved, would the swing battery charger and battery be required to be available/operable (and connected) to supply the associated DC bus prior to and during online battery charger testing? Are procedures in-place for this evolution? If so, describe.

NMC Response:

Because electrical distribution at PBNP is shared between two units, SR 3.8.4.6 is generally performed with at least one unit in Mode 1. Therefore, the battery and its associated bus would be required to be available/operable. To meet operability requirements, the swing battery charger and battery are aligned to the affected bus prior to performance of SR 3.8.4.6.

Therefore, if the proposed changes to SR 3.8.4.6 were approved, the swing battery charger and battery would be required to be available/operable (and connected) to supply the associated DC bus during battery charger testing. This SR would typically be completed by having the battery charger recharge its associated battery while it is disconnected from the DC bus. DC bus loads would be simulated utilizing a load bank.

Procedures to place the swing battery and swing charger on a DC bus and remove the normal battery and its associated charger from service are in place for use at PBNP. These procedures specify the sequence of actions for placing the swing battery and charger in service on the bus; removing the battery and charger to be tested and connecting them to a load bank; performing the test; and restoring the DC electrical system to normal.

NRC Question 5:

For SR 3.8.4.6, in reference to the Point Beach batteries is 'partially discharged' equivalent to 'the bounding design basis event discharge state'?

NMC Response:

A 'partially discharged' battery is a battery in a state that is less than fully charged. The 'bounding design basis event discharge state' is the state that a battery would reach after supplying its design basis event loads.

Although a battery that has reached its 'bounding design basis event discharge state' is also 'partially discharged,' the range of the generic term 'partially discharged' also includes batteries that are greater than their 'bounding design basis event discharge state' (up to, but not including, fully charged). The 'bounding design basis event discharge state' is completely encompassed within the range of 'partially discharged.'

A 'bounding design basis event discharge state' is approximated by performing a service test. This discharge state is achieved by partially discharging a battery in accordance with a calculated current vs. time discharge rate profile. After performance of a battery service test, terminal voltage is verified to be greater than minimum bus voltage for operability. The basis for the 'bounding design basis event discharge state' is discussed in Point Beach Section FSAR 8.7.

For purposes of SR 3.8.4.6, a battery that is 'partially discharged' upon completion of a service test, bounds the 'design basis event discharge state.'

NRC Question 6:

Provide the Ampere-Hour (A-h) ratings of the safety-related batteries at Point Beach.

NMC Response:

Battery	8 Hour Rating	1 Hour Rating
D-05	1800 A-h	925 A-h
D-06	1800 A-h	925 A-h
D-105	1500 A-h	767 A-h
D-106	1500 A-h	767 A-h
D-305	1800 A-h	925 A-h

NRC Question 7:

Provide additional information regarding the clarification (on page 5 of 10 in the Justification) of the Background section of the TS Bases regarding, "A statement in the TS Bases, which is being clarified, implied that a loss of offsite power would also need a coincident safety injection signal to disconnect the battery chargers from their 480 VAC source. A loss of offsite power alone will accomplish this disconnect."

NMC Response:

The Bases statement originally read, "The battery chargers are interlocked such that a loss of offsite power combined with a safety injection signal will disconnect the battery chargers from their 480 VAC source."

This statement is correct since a loss of offsite power and a safety injection signal will disconnect the battery chargers from their source. However, the statement is potentially confusing since the safety injection signal is not needed to strip the chargers; the loss of offsite power alone will accomplish this action.

Upon loss of offsite power, the chargers' AC contactors open. Manual operator action is required to restart the chargers. The system design is such that a coincident safety injection signal would *prevent restoration* of the battery chargers unless offsite power is restored to the safeguards buses. This is done to minimize the loading on the standby emergency power supply during the period immediately following a safety injection signal during a design basis accident. In this case, restoration of the chargers is completed by operators when adequate power is confirmed to be available.

The TS Bases are being revised to clarify this description. The revised Bases will read, "The battery chargers are interlocked such that a loss of offsite power will disconnect the battery chargers from their 480 VAC source. A coincident safety injection signal would prevent restoration of the battery chargers unless offsite power is restored to the safeguards buses."

This change was planned for processing in accordance with the TS Bases Control Program in accordance with 10 CFR 50.59 and was included in the submittal for completeness.