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NMC
Committed to Nuclear Excellence

Kewaunee / Point Beach Nuclear
Operated by Nuclear Management Company, LLC

NRC 2002-0047

10 CFR 50.90

May 29, 2002

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

Dockets 50-266 and 50-301
Point Beach Nuclear Plant, Units 1 and 2
License Amendment Request 227
Technical Specification LCO 3.8.1, AC Sources - Operating

In accordance with the provisions of 10 CFR 50.90, Nuclear Management Company, LLC (NMC) is submitting a request for an amendment to the Technical Specifications (TS) for Point Beach Nuclear Plant, Units 1 and 2.

The proposed amendment would revise TS 3.8.1, AC Sources – Operating, to allow portions of surveillance requirement (SR) 3.8.1.5 to be performed with the unit in Mode 1, 2, 3 or 4. This proposed amendment is consistent with changes made to NUREG-1431, *Standard Technical Specifications, Westinghouse Plants*, by TSTF-283, Revision 3.

NMC requests approval of the proposed License Amendment by August 31, 2002, with the amendment being implemented within 60 days. The approval date was administratively selected to allow for NRC review but the plant does not require this amendment to allow continued safe full power operation.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Wisconsin Official.

To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respects, these statements are not based entirely on my personal knowledge, but on information furnished by cognizant NMC employees and consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on May 29, 2002.

D. L. Lavigne for Mark Warner

Mark E. Warner
Site Vice President

A001

RDS/kmd

Attachments: 1 - Description of Changes
2 - Proposed Technical Specification Changes
3 - Proposed Technical Specification Bases Changes
4 - Revised Technical Specification Pages

cc: NRC Regional Administrator
NRC Resident Inspector
NRC Project Manager
PSCW

DESCRIPTION OF CHANGES

LICENSE AMENDMENT REQUEST 227

TECHNICAL SPECIFICATION LCO 3.8.1, AC SOURCES - OPERATING

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

1.0 INTRODUCTION

This License Amendment Request (LAR) is made pursuant to 10 CFR 50.90 to modify Technical Specification (TS) 3.8.1, AC Sources – Operating, to allow portions of surveillance requirement (SR) 3.8.1.5 to be performed in MODE 1, 2, 3, or 4.

2.0 BACKGROUND

The Class 1E AC Electrical Power Distribution System AC sources consist of the preferred normal offsite power source and the onsite standby emergency power sources. As required by the Point Beach Design Criteria, the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safety Feature (ESF) systems.

The Class 1E AC Distribution System is divided into two redundant load groups (safeguards buses) so that the loss of any one group does not prevent a safety function from being performed. Each safeguards bus has connections to the normal offsite power source and a standby emergency power source.

Offsite power is supplied to the switchyard from the offsite transmission network by four transmission lines. From the switchyard, two separate circuits provide AC power through high voltage (345/13.8 kV) station auxiliary transformers to the 13.8 kV distribution network. The high voltage station auxiliary transformers, are the normal supplies to the 13.8 kV network. A 13.8 kV gas turbine generator can also supply power to the 13.8 kV distribution network. The high voltage station auxiliary transformer normally supplies offsite power to the low voltage station auxiliary transformer for each unit. Alternate power supplies to the station auxiliary transformer are the gas turbine generator and the opposite unit high voltage station transformer.

The 13.8 kV bus configuration allows a high voltage station auxiliary transformer to be removed from service, allowing its associated low voltage auxiliary transformer to be supplied from the opposite unit's redundant high voltage station auxiliary transformer or the gas turbine generator. If a high voltage station auxiliary transformer lockout occurs, the 13.8 kV bus tie breakers will receive an automatic close signal to supply the affected unit's low voltage station auxiliary transformer. The closing of the tie breakers into a common fault is prevented by trip and lockout interlocks in the breaker control circuits.

The 13.8 kV distribution network supplies power to the low voltage station auxiliary transformers, which in turn supply power to 4.16 kV distribution buses. The 4.16 kV distribution buses supply power to safeguards buses.

The onsite standby emergency power system is comprised of four diesel generators that directly supply the 4.16 kV safeguards electrical distribution buses. The normal configuration of the standby emergency power sources is to have an A train standby emergency power source aligned to each A train 4.16 kV bus and a B train standby emergency power source aligned to each B train 4.16 kV bus. Each emergency diesel generator is capable of starting and supplying the power requirement of one complete set of safeguards equipment for one reactor unit, while simultaneously providing sufficient power to allow the other unit to be placed in a safe shutdown condition, with no accident assumed on the second unit.

Normally, all four standby emergency power sources are operable and aligned to their normal bus; however, the standby emergency power sources can be aligned such that only one diesel generator per safeguards train is required operable to support one or both units. In addition, either diesel generator may be manually connected to one or both of its respective trains' 4.16 kV safeguards distribution buses.

Each diesel generator will automatically start on an undervoltage signal from its associated 4.16 kV train in either unit, and will restore power on the bus(es) to which it is aligned. All four diesel generators will automatically start on a safety injection (SI) signal from either unit.

A logic circuit controls the permissive and sequential start signals to various loads to prevent overloading the diesel generator by automatic load application. Sequence and permissives differ based on the initiation signal(s) which are received. The standby emergency power sources will start and operate in the standby mode without tying to its respective 4.16 kV ESF bus(es) on an SI signal alone.

System License Basis

Qualified sources of power between the offsite transmission network, the onsite Class 1E electrical power distribution system, and separate and independent standby emergency power sources for each safeguards train ensures the availability of required power to shut down the reactor and maintain it in a safe shutdown condition after an anticipated operational occurrence or a postulated DBA.

The following AC electrical power sources are required to be operable:

a. One circuit between the offsite transmission network and the associated unit's 4.16 kV Class 1E safeguards buses, utilizing the associated unit's high voltage station auxiliary transformer or the opposite unit's station transformer with the gas turbine in operation, and associated unit's low voltage station auxiliary transformer; and

b. One circuit between the offsite transmission network and the opposite unit's 4.16 kV Class 1E safeguards buses; and

c. One standby emergency power source capable of supplying each 4.16 kV/480 V Class 1E safeguards bus.

Each of the required offsite sources must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the ESF buses. For the offsite AC sources, separation and independence are to the extent practical. A circuit may be connected to more than one ESF bus. Additionally, fast transfer capability of offsite power to the opposite 13.8 kV AC Power Distribution Circuit or Gas Turbine Generator does not violate separation criteria. The closing of the tie breakers into a common fault is prevented by trip and lockout interlocks in the breaker control circuits.

Each Onsite Class 1E Safeguards AC Power Distribution System must be capable of being powered from an operable standby emergency power source. Each standby emergency power source must be capable of starting, accelerating to rated speed and voltage, and connecting to its respective safeguards bus(es) on detection of undervoltage within 10 seconds. Each standby emergency power source must also be capable of accepting ESF loads within the predetermined sequence established by the ESF safeguards logic and sequence timers, and continue to operate until offsite power can be restored to the ESF buses. Sequencing of loads is a required function for standby emergency power source operability.

3.0 PROPOSED CHANGE

The proposed amendment would revise TS SR 3.8.1.5, to allow portions of the SR to be performed in Mode 1, 2, 3, or 4, for the purpose of reestablishing operability (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated operability concerns.) An assessment will be required to be performed, which determines the safety of the plant is maintained or enhanced if conducting portions of this SR in Mode 1, 2, 3, or 4.

Technical Specification Bases changes are also being made to reflect the proposed Technical Specifications changes.

The proposed change is consistent with changes made to NUREG-1431, *Standard Technical Specifications, Westinghouse Plants*, by TSTF-283, Revision 3. TSTF-283 was approved by the NRC on April 13, 2000.

4.0 ANALYSIS

The initial conditions of Design Basis Accident (DBA) and transient analyses in the Final Safety Analysis Report (FSAR) assume ESF systems are operable. The AC electrical power sources are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System (RCS), and containment design limits are not exceeded.

The operability of the AC electrical power sources is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This results in maintaining at least the minimum number of safeguard buses required in support of equipment required to mitigate the consequences of design basis accidents and anticipated operational occurrences in the event of an assumed loss of all offsite power or all onsite AC power and a worst case single failure.

In the event of a DBA coincident with a loss of offsite power, the standby emergency power sources are required to supply the necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded.

SR 3.8.1.5 demonstrates the standby emergency power source operation, during a loss of offsite power actuation test signal, in conjunction with an ESF actuation signal. This test verifies all actions encountered from the loss of offsite power, including shedding of the nonessential loads and energization of the emergency buses and respective loads from the standby emergency power source. It further demonstrates the capability of the standby emergency power source to automatically achieve the required voltage and frequency within analysis limits.

The requirement to verify the connection and power supply of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the standby emergency power source loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, or high pressure injection systems are not capable of being operated at full flow, or residual heat removal (RHR) systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the standby emergency power source systems to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

Performing a portion of SR 3.8.1.5 in Mode 1, 2, 3, or 4 will require an assessment to determine that plant safety is maintained or will be enhanced. This assessment will, as a minimum, consider the potential outcomes and transients associated with a failed partial surveillance, a successful partial surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial surveillance; as well as the operator procedures available to cope with these outcomes. These will be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the surveillance are performed in Mode 1, 2, 3, or 4. Risk insights or deterministic methods will be used for this assessment.

5.0 NO SIGNIFICANT HAZARDS DETERMINATION

In accordance with the requirements of 10 CFR 50.90, Nuclear Management Company (licensee) hereby requests amendments to facility operating licenses DPR-24 and DPR-27, for Point Beach Nuclear Plant, Units 1 and 2, respectively. The purpose of the proposed amendments is to revise TS 3.8.1, AC Sources - Operating, to allow a portion of SR 3.8.1.5 to be performed in Mode 1, 2, 3, or 4.

Nuclear Management Company has evaluated the proposed amendments in accordance with 10 CFR 50.91 against the standards in 10 CFR 50.92 and has determined that the operation of the Point Beach Nuclear Plant in accordance with the proposed amendments presents no significant hazards. Our evaluation against each of the criteria in 10 CFR 50.92 follows.

1. **Operation of the Point Beach Nuclear Plant in accordance with the proposed amendments does not result in a significant increase in the probability or consequences of any accident previously evaluated.**

   The standby emergency power sources are primarily a support system for systems required to be operable for accident mitigation. SR 3.8.1.5 demonstrates the standby emergency power source operation, during a loss of offsite power actuation test signal in conjunction with an Engineering Safeguards Feature (ESF) actuation signal. The proposed amendment only changes the allowed operating Modes in which portions of this surveillance may be performed. Performing portions of the surveillance in Mode 1, 2, 3, or 4 will require an assessment to determine that plant safety is maintained or will be enhanced.

   Therefore, the consequences of an accident previously evaluated will not be significantly increased as a result of the proposed change.

2. **Operation of the Point Beach Nuclear Plant in accordance with the proposed amendments does not result in a new or different kind of accident from any accident previously evaluated.**

   The possibility for a new or different type of accident from any accident previously evaluated is not created as a result of this amendment. These changes do not introduce any new or different normal operation or accident initiators. Performing the surveillance in Mode 1, 2, 3, or 4 will require an assessment to determine that plant safety is maintained or will be enhanced.

   Equipment important to safety will continue to operate as designed. The changes do not result in any event previously deemed incredible being made credible. The changes do not result in more adverse conditions or result in any increase in the challenges to safety systems. Therefore, operation of the Point Beach Nuclear Plant in accordance with the proposed amendment will not create the possibility of a new or different type of accident from any accident previously evaluated.

3. **Operation of the Point Beach Nuclear Plant in accordance with the proposed amendments does not result in a significant reduction in a margin of safety.**

   The standby emergency power sources are primarily a support system for systems required to be operable for accident mitigation. SR 3.8.1.5 demonstrates the standby emergency power source operation, during a loss of offsite power actuation test signal in conjunction with an ESF actuation signal. Performing the surveillance in Mode 1, 2, 3, or 4 will require an assessment to determine that plant safety is maintained or will be enhanced. There are no new or significant changes to the initial conditions contributing to accident severity or consequences. The proposed amendment will not otherwise affect the plant protective boundaries, will not cause a release of fission products to the public, nor will it degrade the performance of any other structures, systems or components (SSCs) important to safety. Therefore, allowing a portion of the surveillance to be performed in Mode 1, 2, 3, or 4, will not result in a significant reduction in the margin of safety.

Conclusion

Operation of the Point Beach Nuclear Plant in accordance with the proposed amendment will not result in a significant increase in the probability or consequences of any accident previously analyzed; will not result in a new or different kind of accident from any accident previously analyzed; and, does not result in a significant reduction in any margin of safety. Therefore, operation of the Point Beach Nuclear Plant in accordance with the proposed amendment does not result in a significant hazards determination.

6.0 ENVIRONMENTAL EVALUATION

NMC has determined that the information for the proposed amendment does not involve a significant hazards consideration, authorize a significant change in the types or total amounts of effluent release, or result in any significant increase in individual or cumulative occupational radiation exposure. Therefore, we conclude that the proposed amendment meets the categorical exclusion requirements of 10 CFR 51.22(c)(9) and that an environmental impact appraisal need not be prepared.

PROPOSED TECHNICAL SPECIFICATION CHANGES

LICENSE AMENDMENT REQUEST 227

TECHNICAL SPECIFICATION LCO 3.8.1, AC SOURCES - OPERATING

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.5	----------NOTE---------- This surveillance shall not normally be performed with the associated unit in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. ---------- Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. Standby emergency power source auto-starts from standby condition and: 1. energizes permanently connected loads, 2. energizes auto-connected emergency loads through load logic and sequencer, 3. achieves steady state voltage within limits, 4. achieves steady state frequency within limits, and 5. supplies permanently connected and auto-connected emergency loads for $\geq$ 5 minutes.	18 months

(continued)

PROPOSED TECHNICAL SPECIFICATION BASES CHANGES

LICENSE AMENDMENT REQUEST 227

TECHNICAL SPECIFICATION LCO 3.8.1, AC SOURCES - OPERATING

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

BASES

SURVEILLANCE REQUIREMENTS (continued)

The requirement to verify the connection and power supply of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the standby emergency power source loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, or high pressure injection systems are not capable of being operated at full flow, or residual heat removal (RHR) systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the standby emergency power source systems to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The Frequency of 18 months is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 4), takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with standard fuel cycle lengths.

For the purpose of this testing, the standby emergency power sources must be started from standby conditions. That is, with the engine oil continuously circulated and engine temperature maintained consistent with manufacturer recommendations for standby emergency power sources.

This SR is modified by a note. The reason for the Note is that the performance of the Surveillance would remove a required offsite source from service, perturb the electrical distribution system and challenge safety systems.

This restriction from normally performing the Surveillance in MODE 1, 2, 3 or 4 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown

BASES

SURVEILLANCE REQUIREMENTS (continued)

and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1, 2, 3 or 4. Risk insights or deterministic methods may be used for this assessment.

SR 3.8.1.6

As required by Regulatory Guide 1.9 (Ref. 4), this Surveillance ensures that the manual synchronization and load transfer from the standby emergency power source to the offsite source can be made and the standby emergency power source can be returned to ready to load status when offsite power is restored. It also ensures that the autostart logic is reset to allow the standby emergency power source to reload if a subsequent loss of offsite power occurs. The standby emergency power source is considered to be in ready to load status when the standby emergency power source is at rated speed and voltage, the output breaker is open and can receive an autoclose signal on bus undervoltage, and the load sequence timers are reset.

The Frequency of 18 months is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 4), and takes into consideration unit conditions required to perform the Surveillance.

REFERENCES

1. FSAR. Section 1.3.
2. FSAR. Chapter 8.
3. FSAR. Chapter 14.
4. Regulatory Guide 1.9, Rev. 3, July 1993.
5. Regulatory Guide 1.93, Rev. 0, December 1974.
6. Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability," July 2, 1984.

REVISED TECHNICAL SPECIFICATION PAGES

LICENSE AMENDMENT REQUEST 227

TECHNICAL SPECIFICATION LCO 3.8.1, AC SOURCES - OPERATING

POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.5	----------NOTE---------- This surveillance shall not normally be performed with the associated unit in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. ----------	
	Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. Standby emergency power source auto-starts from standby condition and: 1. energizes permanently connected loads, 2. energizes auto-connected emergency loads through load logic and sequencer, 3. achieves steady state voltage within limits, 4. achieves steady state frequency within limits, and 5. supplies permanently connected and auto-connected emergency loads for $\geq$ 5 minutes.	18 months

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

The requirement to verify the connection and power supply of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the standby emergency power source loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, or high pressure injection systems are not capable of being operated at full flow, or residual heat removal (RHR) systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the standby emergency power source systems to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The Frequency of 18 months is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 4), takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with standard fuel cycle lengths.

For the purpose of this testing, the standby emergency power sources must be started from standby conditions. That is, with the engine oil continuously circulated and engine temperature maintained consistent with manufacturer recommendations for standby emergency power sources.

This SR is modified by a note. The reason for the Note is that the performance of the Surveillance would remove a required offsite source from service, perturb the electrical distribution system and challenge safety systems.

This restriction from normally performing the Surveillance in MODE 1, 2, 3 or 4 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown

BASES

SURVEILLANCE REQUIREMENTS (continued)

and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1, 2, 3 or 4. Risk insights or deterministic methods may be used for this assessment.

SR 3.8.1.6

As required by Regulatory Guide 1.9 (Ref. 4), this Surveillance ensures that the manual synchronization and load transfer from the standby emergency power source to the offsite source can be made and the standby emergency power source can be returned to ready to load status when offsite power is restored. It also ensures that the autostart logic is reset to allow the standby emergency power source to reload if a subsequent loss of offsite power occurs. The standby emergency power source is considered to be in ready to load status when the standby emergency power source is at rated speed and voltage, the output breaker is open and can receive an autoclose signal on bus undervoltage, and the load sequence timers are reset.

The Frequency of 18 months is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 4), and takes into consideration unit conditions required to perform the Surveillance.

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1. FSAR. Section 1.3.
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4. Regulatory Guide 1.9, Rev. 3, July 1993.
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