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VPNPD-94-057
NRC-94-041

10 CFR 50.4
10 CFR 50.90

May 26, 1994

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U.S. NUCLEAR REGULATORY COMMISSION
Mail Station P1-137
Washington, DC 20555

Gentlemen:

DOCKETS 50-266 AND 50-301
TECHNICAL SPECIFICATIONS CHANGE REQUEST 166
MODIFICATION TO TS 15.3.0-LIMITING CONDITIONS FOR OPERATION,
15.3.14-FIRE PROTECTION SYSTEM, 15.3.7-AUXILIARY ELECTRICAL
SYSTEMS, AND 15.4.6-EMERGENCY POWER SYSTEM PERIODIC TESTS,
POINT BEACH NUCLEAR PLANTS, UNITS 1 AND 2

In accordance with the requirements of 10 CFR 50.4 and 50.90, Wisconsin Electric Power Company (Licensee) hereby requests amendments to Facility Operating Licenses DPR-24 and DPR-27 for Point Beach Nuclear Plant, Units 1 and 2 respectively, to incorporate changes to the plant Technical Specifications. The proposed revisions will modify Technical Specification Sections 15.3.0, "Limiting Conditions for Operation;" 15.3.7, "Auxiliary Electrical Systems;" 15.3.14, "Fire Protection System;" and 15.4.6, "Emergency Power System Periodic Tests." A description of the current license condition, proposed changes, safety evaluation, no significant hazards consideration, edited Technical Specifications pages, testing schedule, and revised pages for the design summary are provided as attachments to this letter.

We are performing a modification that will install two additional emergency diesel generators and reconfigure portions of the 4160 Volt emergency electrical power system at our Point Beach Nuclear Plant. The first connection of the output of one of the additional emergency diesel generators into the existing safeguards bus electrical system is expected to take place during the fall 1994 Unit 2 refueling outage presently scheduled to start on September 24, 1994. Issuance of this amendment to the Point Beach Technical Specifications will be required to support the reconfiguration of the emergency electrical power distribution system at that time.

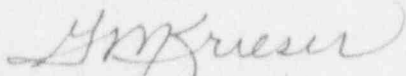
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May 26, 1994
Page 2

Please feel free to contact us if you have any questions.

Sincerely,

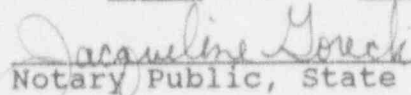


Bob Link
Vice President
Nuclear Power

Enclosures

cc: NRC Resident Inspector
NRC Regional Administrator
Public Service Commission of Wisconsin

Subscribed and sworn to before me
this 26th day of May, 1993.


Notary Public, State of Wisconsin

My Commission expires 10-27-96.

CAC/cms

TECHNICAL SPECIFICATION CHANGE REQUEST 166
DESCRIPTION OF CURRENT LICENSE CONDITION

The following is a description of the Technical Specification sections that will be affected by this change.

Technical Specification 15.3.0, "Limiting Conditions for Operation," provides the general considerations for Limiting Conditions of Operation. As part of these general considerations, Technical Specification 15.3.0 specifies the requirements for determining the operability of system, subsystem, train, component, or device based on the operability of the emergency power source or the normal power source.

Technical Specification 15.3.7, "Auxiliary Electrical Systems," specifies the limiting condition for operation requirements for off-site and on-site electrical power for plant power operation and for the operation of plant auxiliaries with the following objectives: (1) Provide for safe reactor operation and (2) provide for the continuing availability of engineered safeguards.

Technical Specification 15.3.14, "Fire Protection System," specifies the limiting condition for operation requirements associated with fire protection components which would be employed to mitigate the consequences of fires which could affect equipment required for safe plant operation.

Technical Specification 15.4.6, "Emergency Power System Periodic Tests," specifies the periodic testing and surveillance requirements for the emergency power system.

TECHNICAL SPECIFICATION CHANGE REQUEST 166
DESCRIPTION OF PROPOSED CHANGES

We are performing a modification that will install two additional emergency diesel generators and reconfigure portions of the 4160 Volt emergency electrical power system at our Point Beach Nuclear Plant. A design summary of this project was provided to the NRC via a letter from Wisconsin Electric to the NRC dated September 24, 1993. Revised pages for the design summary are contained in Attachment 7.

The connection of the two additional emergency diesel generators and the reconfiguration of the 4160 Volt emergency electrical power system will take place over a period of 2 years. This proposal for amendment to the Point Beach Technical Specifications establishes the requirements for the electrical systems at Point Beach such that the Technical Specifications will provide the appropriate guidance for all interim configurations and the final configuration.

Section 15.3.0 General Considerations, Limiting Conditions for Operation, Bases

Changes the basis section for TS 15.3.0 to include the appropriate references to TS 15.3.7 and changes the nomenclature used for the on-site emergency AC power source from "emergency diesel generator" or "emergency power source," where used, to "standby emergency power supply."

This change is necessary because the installation of additional emergency diesel generators will provide the capability to establish various emergency AC power configurations. This nomenclature provides an efficient method to specify the Technical Specification requirements to use this capability.

Section 15.3.7 Auxiliary Electrical Systems

Specification 15.3.7.A.1.d, e, and f

Changes the Limiting Conditions for Operation for the 4160 Volt (A05 and A06) and 480 Volt (B03 and B04) safeguards buses and the emergency diesel generators (standby emergency power supplies) to make one or both reactors critical by combining the requirements for normal power supply from 15.3.7.A.1.d and e and the requirements for standby emergency power supply from 15.3.7.A.1.f and placing them into separate specifications 15.3.7.A.1.j, k, and l for making Unit 1, Unit 2, and both reactors critical. Also, the fuel oil storage requirement in specification 15.3.7.A.1.f is being clarified to require 11,000 gallons of fuel oil in each tank that is being relied upon to supply any operable emergency diesel generator(s).

This change is an improvement over the existing Technical Specification requirements because it provides the proper Technical Specification requirements for the electrical system to make one or both of the reactors critical. Specifically, the requirements for normal and standby emergency power for shared equipment powered from the other unit's buses are considered in these specifications. Also, the 11,000 gallon fuel oil storage requirement is being clarified.

Specification 15.3.7.A.1.j, k, and l

Add these specifications to replace the requirements previously contained in Specifications 15.3.7.A.1.d, e, and f.

This change combines the requirements for normal and standby emergency power and places these requirements in separate specifications for making Unit 1, Unit 2, and both reactors critical.

Specification 15.3.7.A.2

Remove specification 15.3.7.A.2 entirely.

This change removes the Technical Specification that would allow one reactor to be made critical without offsite power or with only one transmission line in service.

Since the construction of PBNP, additional power generation facilities have been added to the Wisconsin Electric system, such as additional combustion turbines. Current offsite power system recovery would be initiated by using sources of power other than Point Beach, so this specification is no longer considered necessary.

Specification 15.3.7.B.1.d and g

The requirements of 15.3.7.B.1.d and g are being placed into the new Specifications 15.3.7.1.f, g, and h.

The new Specifications 15.3.7.1.f, g, and h incorporate the requirements of 15.3.7.B.1.d by specifying the requirements for normal power to be operable for each unit with consideration of the shared equipment that is powered from buses on the opposite unit.

The new Specifications 15.3.7.B.1.f, g, and h incorporate the requirements of 15.3.7.B.1.g by specifying; the requirements for standby emergency power to be operable for each unit with consideration of the shared equipment that is powered from buses on the opposite unit, the requirements for redundant engineered safety features to be operable, and the requirements for redundant emergency power supplies to be tested within 24 hours of entry into

any of these LCOs and every 72 hours thereafter.

The associated 480 Volt bus designations are being included to maintain consistency with the new Specifications 15.3.7.A.1.j, k, and l. This also makes these Specifications more complete and accurate for the AC power distribution system requirements.

The requirement from Specification 15.3.7.B.1.g which states, "This LCO shall not be allowed in conjunction with e. or f. above" is no longer necessary. The cross-tie Specification 15.3.7.B.1.e (being redesignated 15.3.7.B.1.d), 8-hour LCO, is being changed to include the statement, "The required redundant shared engineered safety features for the other unit are operable." This statement provides the appropriate guidance for all the required redundant shared equipment, including the emergency diesel generators.

This also applies to the cross-tie specification for the defueled condition, Specification 15.3.7.B.1.f (being redesignated 15.3.7.B.1.e). Therefore, the statement, "This LCO shall not be allowed in conjunction with e. or f. above" is no longer necessary.

Specification 15.3.7.B.1.e and f

Change 15.3.7.B.1.e to 15.3.7.B.1.d, add the applicability for defueled condition, and change the reference from 15.3.7.B.1.f to 15.3.7.B.1.e.

As described previously, Specification 15.3.7.B.1.d is being deleted. Therefore, the Specification 15.3.7.B.1.e is being redesignated to 15.3.7.B.1.d. The applicability to the defueled condition is being added because this specification was always applicable to the defueled condition by reference to 15.3.7.B.1.f. Therefore, the inclusion of the applicability for the defueled condition is a clarification.

Change 15.3.7.B.1.f to 15.3.7.B.1.e.

As described previously, Specification 15.3.7.B.1.d is being deleted. Therefore, the Specification 15.3.7.B.1.f is being redesignated to 15.3.7.B.1.e.

Change both of these Specifications to incorporate the requirement from Specification 15.3.7.B.1.g which states, "This LCO shall not be allowed in conjunction with e. or f. above." This requirement is being incorporated into the proposed Specification 15.3.7.B.1.d by adding the statement, "The required redundant decay heat removal for the shutdown unit and the required redundant shared engineered safety features for the other unit are operable." This requirement is being incorporated into the proposed Specification 15.3.7.B.1.e by adding the statement, "The required redundant shared engineered safety features for the other unit are operable." These statements

provide the appropriate guidance for all the required redundant equipment, including the emergency diesel generators.

Specification 15.3.7.B.1.f, g, and h

Add these specifications to replace the requirements previously contained in Specifications 15.3.7.B.1.d and g.

This change combines the requirements for normal and standby emergency power and provides the allowable outage times for normal or standby emergency power to the safeguards buses.

Specification 15.3.7.B.1.k

Add this specification to provide appropriate guidance for the condition of a deenergized safeguards bus. This change corrects a contradiction in the Technical Specifications.

The Technical Specifications do not provide guidance for the loss of both the normal and standby emergency power supplies. This condition would invoke the General Consideration Specification 15.3.0.A which states, "In the event an LCO cannot be satisfied because of equipment failures or limitations beyond those specified in the permissible conditions of the LCO, the affected unit, which is critical, shall be placed in hot shutdown conditions within three hours of discovery of the situation."

It is more appropriate to enter the applicable Limiting Conditions for Operation for the equipment that is rendered inoperable by the loss of power to the safeguards bus or buses. The proposed Specification 15.3.7.B.1.k will provide this guidance.

Section 15.3.7 Basis

Change the basis section for TS 15.3.7 to include the two additional diesel generators that are being installed at Point Beach.

The emergency diesel generators are being identified as the standby emergency power sources and the A03 and A04 buses as the normal power sources.

A paragraph is being added to explain the new provisions in the bus-tie breaker specifications that the required redundant shared engineered safety features for the other unit are operable.

The description of an operable standby emergency power supply for a bus is being added to this basis section. It states that the standby emergency power supply for a 4160 Volt and associated 480 Volt safeguards bus consists of an operable EDG, including all the required support systems, and an operable output breaker to that

4160 Volt safeguards bus.

A paragraph is being added to explain that the starting of redundant standby emergency power supplies is not necessary if the standby emergency power LCO is exited within 24 hours.

The starting air banks for the new EDGs have two storage bottles in each bank compared to three storage bottles in each bank for the existing EDGs. Therefore, the words "all three" are being replaced by just the word "all" in the requirement for the number of air bottles that must be operable in each starting air bank.

The new emergency diesel generators do not have sump tanks or the two associated base mounted sump tank fuel oil transfer pumps, which are on the existing EDGs. Therefore, the statements provided in the basis regarding the fuel oil system are being changed to reflect this.

The specific DC circuit power sources are being removed because DC circuit power sources for the new emergency diesel generators and the original emergency diesel generator, G-02, will be changed as part of this modification to the electrical power system. Also, it is not necessary to provide this detail in this Technical Specification basis, because this information is available from other sources which are considered more appropriate, such as; controlled drawings, procedures, and technical information for Point Beach.

Section 15.3.14 Fire Protection System

Specification Table 15.3.14-1

Add items 15, 16, 17, 18, 19, and 20 and an associated note to Table 15.3.14-1 to include the fire protection requirements for the new safe shutdown areas being added by this modification to Point Beach. The note identifies the mechanical equipment room in the new emergency diesel generator building as the location for fire hose stations.

Section 15.4.6 Emergency Power System Periodic Tests

Specification 15.4.6.A.4

Remove the frequency for inspection of the emergency diesel generators. This specification currently states that the inspection be performed "at least annually, following the manufacturer's recommendations for this class of standby service." This is being changed to remove the "at least annually" clause.

Operating experience and manufacturers recommendations currently indicate that annual maintenance inspections are not necessary.

The manufacturer's recommendations, as interpreted by the EMD owners' group, will be followed for all the EDGs at Point Beach.

Specification 15.4.6.A.6

Change this specification to include the appropriate designations for the fuel oil that is required to be sampled.

The sampling requirement is basically remaining the same, except that the fuel oil tanks that are being installed as part of the new emergency diesel generator project are not called "emergency fuel oil tanks." These tanks are called "fuel oil storage tanks." Therefore, the terminology for identification of the tanks that must be sampled is being changed to "fuel oil storage tanks which supply the emergency diesel generators."

TECHNICAL SPECIFICATION CHANGE REQUEST 166
SAFETY EVALUATION

Introduction

Wisconsin Electric Power Company (Licensee) has applied for amendments to Facility Operating Licenses DPR-24 and DPR-27 for Point Beach Nuclear Plant, Units 1 and 2. The amendments propose to revise the Technical Specification Limiting Conditions for Operation for normal and standby emergency power such that the addition of two emergency diesel generators at Point Beach is appropriately accounted for in the Technical Specifications.

The new emergency diesel generator (EDG) configuration at PBNP will consist of four shared emergency diesel generators. Two train A and two train B EDGs will be normally available when this modification is complete. The two train A diesels will normally be aligned as standby emergency power, one to the Unit 1 train A 4160 volt bus (1A05) and one to the Unit 2 train A 4160 volt bus (2A05). The two train B EDGs will normally be aligned as standby emergency power, one to the Unit 1 train B 4160 volt bus (1A06) and one to the Unit 2 train B 4160 volt bus (2A06).

The two A train EDGs will be the original EDGs G-01 and G-02. G-01 will automatically provide power to 1A05 if power is lost on 1A05, G-02 will automatically provide power to 2A05 if power is lost on 2A05. G-01 will be manually connectable to provide power to 2A05, and G-02 will be manually connectable to provide power to 1A05. Additionally, if G-01 is out of service, G-02 may be placed in a mode that will allow it to automatically provide power to 1A05 or 2A05 or both, if either or both buses lose power. G-01 will have the same capability in the A train. The new EDGs G-03 and G-04 will have the same capabilities in the B train.

The primary reason for this configuration is to allow both units to continue operating without being in a Technical Specification Limiting Condition for Operation (LCO) for the situation of an EDG in one train or two EDGs, one in each train, being out of service. Two EDGs out of service in the same train will be equivalent to one diesel out of service in the current emergency electrical power system configuration, that is, a 7-day LCO would apply to both units. With a third diesel out of service, a 7-day LCO would apply to both units. With four diesels out of service, LCO 15.3.0, "General Consideration," hot shutdown within 3 hours, would apply for both units.

The service water and auxiliary feedwater systems are shared between Point Beach Units 1 and 2. The service water and auxiliary feedwater pump motors are supplied by the following 480 Volt

safeguards bus arrangement:

- Unit 1, A Train, 1B03 powers electric auxiliary feedwater pump P-38A and service water pumps P-32A and P-32B.
- Unit 1, B Train, 1B04 powers service water pump P-32C.
- Unit 2, A Train, 2B03 powers service water pump P-32F
- Unit 2, B Train, 2B04 powers electric auxiliary feedwater pump P-38B and service water pumps P-32D and P-32E.

The loss of normal power supply or standby emergency power supply for 1B03 or 2B04 results in a loss of redundancy for the service water and auxiliary feedwater system for both units because of this shared equipment power supply arrangement. Therefore, the LCO for the loss of normal power supply or standby emergency power supply for either of these buses must apply to both units. The loss of normal power supply or standby emergency power supply for 1B04 or 2B03 does not result in an LCO for the unaffected unit, because sufficient redundancy remains (i.e. both electric auxiliary feedwater pumps and at least 2 service water pumps in each train).

The applicability of the LCO to one or both units should be determined by which bus has lost normal or standby emergency power capability. The normal power supplies to the 4160 Volt safeguards buses 1A05, 1A06, 2A05, and 2A06 are the 1A03, 1A04, 2A03, and 2A04 buses, respectively. The standby emergency power supplies are the emergency diesel generators. The emergency diesel generators power the 4160 Volt safeguards buses 1A05, 1A06, 2A05, and 2A06 which in turn power the 480 Volt safeguards buses 1B03, 1B04, 2B03, and 2B04 respectively.

Point Beach FSAR Requirements

The function of the auxiliary electrical system is to provide reliable power to those auxiliaries required during any normal or emergency mode of plant operation.

The design of the system is such that sufficient independence or isolation between the various sources of electrical power is provided in order to guard against concurrent loss of all auxiliary power.

The following General Design Criteria (GDC) from the Point Beach FSAR is applicable for the emergency power system at PBNP:

- GDC 2 Those systems and components of reactor facilities which are essential to the prevention or to the mitigation of the consequences of nuclear accidents which could cause undue risk to the health and safety of the public shall

be designed, fabricated, and erected to performance standards that will enable such systems and components to withstand, without undue risk to the health and safety of the public the forces that might reasonably be imposed by the occurrence of an extraordinary natural phenomenon such as earthquake, tornado, flooding condition, high wind or heavy ice. The design bases so established shall reflect: (a) appropriate consideration of the most severe of these natural phenomena that have been officially recorded for the site and the surrounding area; and (b) appropriate margin for withstanding forces greater than those recorded to reflect uncertainties about the historical data and their suitability as a basis for design.

All emergency electrical systems and components vital to plant safety, including the emergency diesel generators, are designed so that their integrity is not impaired by the maximum potential earthquake, wind storms, floods or disturbances on the external electrical system. Power, control and instrument cabling, motors and other electrical equipment required for operation of the engineered safety features are suitably protected against the effects of either a nuclear system accident or severe external environmental phenomena in order to assure a high degree of confidence in the operability of such components in the event that their use is required.

GDC 39 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 and protection systems required to avoid undue risk to the health and safety of the public. This power source shall provide this capacity assuming a failure of a single active component.

Independency: The independency of the A and B trains will be maintained.

Redundancy: The redundancy of the emergency power source is the A and B trains. Each train is redundant to the other. The addition of two emergency diesel generators will not add redundancy, because PBNP will continue to have two trains of safety equipment. Also, the new diesel generator configuration will allow up to one emergency diesel generator to be out of service in each train which would place PBNP back into the current EDG configuration (i.e. one emergency diesel for each train).

Capacity: The new diesel generator configuration will allow up to one emergency diesel generator to be out of service in each train which would place PBNP back into the current EDG configuration (i.e. one emergency diesel for each train). Therefore, the

capacity of the emergency power system is not affected by this modification, except that the new emergency diesel generators have slightly lower capacity (2 KW less at the 2000 hour rating [2850 KW vs. 2848 KW], which is approximately 0.1% of the total EDG capacity) than the original diesel generators. The diesel capacity evaluation shows that the new emergency diesel generators have sufficient capacity to power the necessary loads to mitigate an accident in one unit and safely shutdown the other unit, based on the same load ratings (200 and 2000 hour) as the original emergency diesel generators.

Testability: The PBNP Technical Specification Section 15.4.6 requires monthly load testing of each diesel generator and emergency load testing each refueling outage. At least two EDGs, one Train A and one Train B, will be emergency load tested to the unit that is in refueling outage. The other two diesels will start, but will not normally be emergency load tested until the next refueling outage on the other unit. The EDGs are currently not tested to both units simultaneously. This will not change with the addition of two emergency diesel generators.

The following testing information is from a letter to the NRC dated January 26, 1994. Minor changes to this testing program that were made since January 26, 1994, have been included:

Factory Acceptance testing was successfully completed during December of 1993 on both of the additional emergency diesel generators:

1. Performance tests per paragraphs 6.2.1.2 a through d of IEEE Std 387-1984.
2. Single-Load Rejection Test equal to our largest single load.
3. Full-Load Rejection Test.
4. Transient Tests
 - 0 - 25% Load Step
 - 0 - 50% Load Step
 - 0 - 75% Load Step
 - 0 - 100% Load Step

The following testing was completed on one of the emergency diesel generators:

1. Start and Load Acceptance Tests consisting of 30 consecutive successful start and load tests.
2. Load Acceptance Test (Load Profile Test).

3. Margin Test per the IEEE Standard 387-1984.
4. 24 hour endurance test 2 hours at 2987 kW and 22 hours at 2951 kW, rated load is 2850 kW.

Site Acceptance testing will be performed in two phases. The first phase will consist of the tests shown below and will be performed prior to permanent tie-in to the plant. The tests will be performed by using a temporary connection to the electrical distribution system.

1. Start Tests (25 starts per unit)
2. Load-Run Test
3. Fast-Start Test
4. Hot Restart Test
5. Full-Load Rejection Test.
6. Margin Test per the IEEE Standard 387-1984.
7. 24 hour endurance test 2 hours at 2987 kW and 22 hours at 2951 kW, rated load is 2850 kW.

These tests are scheduled to be conducted during July, August, and September of 1994.

The second phase of site testing will be conducted during the tie-in phase of each diesel. These tie-ins will be performed during the refueling outages for each unit.

1. Synchronizing Test
2. Protective Trip Bypass Test
3. Redundant Unit Test
4. Loss-of-Offsite-Power (LOOP) Test
5. Safety-Injection-Actuation-Signal (SIAS) Test
6. Combined SIAS and LOOP Test. This test will be only run as an SIAS coincident with a LOOP. A delayed SIAS or LOOP scenario will not be conducted. This is consistent the current testing process for existing emergency diesel generators.
7. Single-Load Rejection Test equal to our largest single

load.

The projected schedule for these tests is as follows:

October 1994	EDG G-04 to Unit 2, B Train (2A-06)
April 1995	EDG G-03 to Unit 1, B Train (1A-06) and EDG G-04 to Unit 1, B Train (1A-06)
October 1995	EDG G-03 to Unit 2, B Train (2A-06) and EDG G-02 to Unit 2, A Train (2A-05)
April 1996	EDG G-02 to Unit 1, A Train (1A-05)

**Differences Between the New and
Original Emergency Diesel Generators and
Other Changes to Point Beach by this Modification**

1. This modification will establish the capability of the diesels in the same train to provide backup for each other. Selection of the diesel generator that will automatically energize a 4160V safeguards bus upon an undervoltage condition is made by placing the associated diesel generator output breaker control switch in the Auto position. The alternate standby emergency power supply that will not automatically energize the bus will have its output breaker control switch key locked in the Pull-Out position.

The control switch for both of the output breakers for one EDG must be in pull-out when both the breakers from the other EDG in the same train are in Auto to reduce the possibility of accidental paralleling of two emergency diesel generators. Also, the output breakers will have electrical interlocks that prevent closure if the output breaker from the same train diesel is closed to that bus. The emergency diesel generator system could still perform its safety function even if accidental parallel operation of the diesels occurred, if only one train is affected. The failure of one train of emergency power has been previously evaluated in the PBNP FSAR.

2. The new diesel generators have slightly lower capacity.

The new EDG ratings are 2848 for 2000 hours and 2951 kw for 200 hours. The original EDG ratings are 2850 kw for 2000 hours and the 2963 for 200 hours. The current initial (i.e. first 1/2 hour) accident loads on G01 and G02 are 2786 Kw and 2909 Kw, respectively. The loads decrease to 2584 kw for either diesel after the first 1/2 hour has passed. Therefore, the new emergency diesel generators have sufficient capacity for accident loads because the new emergency diesel generators have sufficient capacity based on the same load ratings (200 and 2000 hour) as the original emergency diesel generators.

Also, installing two additional EDGs will increase the

likelihood that more than one diesel would be operable at the onset of an accident. If more than one diesel is operable after the onset of an accident, less loads could be placed on each of the operable emergency diesel generators, thus increasing the margin between the diesel loading and the 200 hour rating.

3. The new diesel generators are in an exterior building. Fuel Oil and cable runs are run underground into the plant.

The new diesel generator building, and the fuel oil and cable runs are designed and constructed with appropriate protection and integrity to minimize the risk of failure due to exposure to hazards outside the plant.

4. The new diesel generators are radiator cooled.

The radiator cooling is different than the cooling of the original emergency diesel generators. The original diesel generators are cooled by service water. The design and construction of the radiator cooling system is such that it is not more susceptible to failure than the cooling system for the original emergency diesel generators. Also, this will make the emergency AC power system less susceptible to common mode failure because of the diverse means of cooling the original and new EDGs.

5. The location of the B train 4160 V emergency power buses and switchgear will be changed from the vital switchgear room to the new diesel generator building.

This is an improvement over the current arrangement of the 4160 V emergency power buses. The lack of sufficient separation of Train A and Train B 4160 V buses in the vital switchgear room was a major concern for fire scenarios in that area. Moving one train of 4160 V switchgear out of this room is a significant improvement in separation. The new train B equipment that is being used is equivalent or better than the original emergency power equipment.

6. The new fuel oil system will be used for the new and original emergency diesel generator fuel supply.

This is an improvement over the current fuel oil supply system for the original diesel generators. The new fuel oil system provides a greater inventory than the original system with seismic class I storage and transfer systems.

The new fuel oil system will be fully functional for the new emergency diesel generators (G-03 and G-04) as they are placed into service. The original fuel oil system will continue to

provide fuel oil for the original emergency diesel generators (G-01 and G-02) until the Unit 1 refueling outage in 1995, currently scheduled for April-May 1995. Until that time, the original fuel oil supply system will serve the original emergency diesel generators and the new fuel oil system will serve the new emergency diesel generators.

The Technical Specification requirement (TS 15.3.7.A.1.f) is 11,000 gallons of fuel oil available. The present Technical Specification Bases state that a fully loaded EDG consumes approximately 205 gallons per hour and that 11,000 gallons is sufficient fuel to operate one EDG at design load for more than 48 hours. This requirement will remain the same under these proposed Technical Specifications, except that the new fuel oil system will have two tanks, so the 11,000 gallons will be required in each tank that provides fuel for operable emergency diesel generators. This effectively doubles the fuel oil storage requirement when the first new emergency diesel generator is placed in service, because that EDG will have an 11,000 gallon supply requirement and the original emergency diesel generators will have an 11,000 gallon supply requirement.

In the original fuel oil system, an additional supply of diesel oil is maintained on the site in two 60,000 gallon storage tanks to supply the gas turbine generator and the heating boilers. This oil can be transferred by a gravity feed to the original 12,000 gallon underground emergency storage tank and from there the fuel oil can be transferred by the original fuel oil transfer pumps to the original emergency diesel generators G-01 and G-02.

After the new fuel oil system is placed into service for the existing emergency diesel generators, it is not expected that the existing fuel oil system will be used to support any EDG operation. The existing fuel oil system will continue to supply fuel oil for the heating boilers and the gas turbine generator used for station blackout as discussed above. The amount of fuel needed for station blackout from the existing bulk fuel storage tanks is an eight hour supply at approximately 2,000 gph, or about 16,000 gallons.

7. G-02 will be changed to a Train A emergency diesel.

This change requires the auxiliary and support functions for G-02 to be changed to train A. This includes the ventilation fans W-012C and W-012D. Control power will be changed from Train B (D-02) to Train A (D-03). The existing undervoltage and Safety Injection sequencing logic will be changed to include the G-02 output breakers closure in Train A and the additional diesel generators output breakers closure signals

for service water pump sequence initiation in Train B. Also, only the three Train A service water pumps will start on G-01 and/or G-02 output breaker closure. In the original train configuration G-01 output breaker closure initiates the three Train A service water pumps' sequencing and G-02 output breaker initiates the three Train B service water pumps' sequencing.

The service water pump sequential starting on the emergency diesel generator output breaker closure for the undervoltage situation is for providing cooling to the existing emergency diesel engines (G-01 and G-02). The starting of only the Train A service water pumps for G-01 and G-02 is adequate for diesel cooling requirements and engineered safety feature requirements in Train A.

The control power change from Train B (D-02) to Train A (D-03) for G-02 will change the route that the control power follows to reach G-02. An evaluation of the new route will be performed to verify that the new control power routings meet all applicable requirements (EQ, separation, etc.). This evaluation will be performed for the cable routings for the new EDGs as well.

8. The new diesel starting air compressor arrangement is different than the original diesel generators.

The original emergency diesel generators (G-01 and G-02) have 2 compressors. The 2 compressors have 3 different sources of power. The compressors for G-01 are K-4A and K-5A. K-4A has dual power capability, a motor supplied by Unit 1 Train A safeguards motor control center (MCC 1B-32) and a diesel fuel powered engine. K-5A is powered by a motor supplied by Unit 1 Train B safeguards MCC (1B-42). The compressors for G-02 are K-4B and K-5B. K-4B has dual power capability, a motor supplied by Unit 2 Train B safeguards MCC (2B-42) and a diesel fuel powered engine. K-5B is powered by a motor supplied by Unit 2 Train A safeguards MCC (2B-32).

The new emergency diesel generators (G-03 and G-04, which are B Train) will have 2 compressors. Each of the new emergency diesel generators will have an electric motor-powered compressor supplied by Train B and one diesel fuel-powered compressor. This is a minor difference in the redundancy capability in a non-safety related portion of the diesel starting air system.

The compressor portion of the diesel starting air system is classified as non-safety related because the diesel starting air receiver tanks store sufficient air to start the diesels. The compressors start automatically on low pressure signals

from the diesel starting air receiver tanks.

9. The new emergency diesel generators have a different starting sequence.

The PBNP FSAR states that the emergency diesel generators are capable of being started and ready to accept load in 10 seconds and that the starting system is completely redundant for each diesel generator. This is also applicable to the new emergency diesel generators.

The PBNP FSAR further states:

A selector switch determines which solenoid valve and, in turn, which bank of starting motors will be activated, first. When the signal to start the diesel is initiated, a motor driven fuel pump and booster pump will start, and the preselected solenoid valve will be energized to open. When the starter motor pinions are engaged, the starter motors will crank the engine.

Cranking continues until either the engine starts or until a predetermined time period of 3 seconds has elapsed. At this time, the start failure alarm will come on, followed by a start attempt by both banks of start motors. If the engine again fails to start, after 6 seconds, a startup attempt will be made by only the opposite bank of motors. Although sufficient air storage is provided to permit at least 5 starts before the tanks are exhausted, only 3 start attempts will be made on an initiated start signal. Operator action is required for additional start attempts.

The new emergency diesel generators, G-03 and G-04, starting sequence is different than this description of the original emergency diesel generators, G-01 and G-02, starting sequence. The new emergency diesel generators do not have the selector switch for establishing a lead starting air motor. The new emergency diesel generator start sequence is both banks simultaneously. If the new emergency diesel generator fails to start, the air motors will continue to crank the engine until the EDG starts or for 5 seconds. Operator action is required for additional start attempts. Sufficient air storage is provided to permit at least 5 start attempts before the air storage is exhausted.

These differences in the starting sequence do not affect the capability of the EDGs of being started and ready to accept load in 10 seconds. The starting system is completely

redundant for each diesel generator. Therefore, these differences do not prevent the new EDGs from performing their required function.

10. The new emergency diesel generators do not have base mounted fuel oil sump tanks.

The PBNP FSAR states, "A 550 gallon storage tank is located in the base of each of the units. An additional 550 gallon 'day tank' is located adjacent to each unit. The day tanks are normally split but can be cross-connected allowing either tank to supply either unit."

The new emergency diesel generators do not have base tanks. The day tank for each of the new emergency diesel generators will contain sufficient fuel to run an EDG continuously for 120 minutes without makeup. The consumption rate will be based on operation of an EDG at 100% of the 2000 hour load rating (2848 KW) plus an additional 10% amount of fuel.

The basis section of Technical Specification 15.3.7 states that the combined supply of fuel oil in the diesel base and day tanks is sufficient to operate a diesel for four hours. This does not change for the existing emergency diesel generators. The new emergency diesel generators do not have base tanks, therefore they have a two hour supply from each day tank without makeup.

This difference in the fuel oil supply systems between the new and existing emergency diesel generators only changes the period of time that the new emergency diesel generators could be operated prior to replenishing the day tank supply from the fuel oil storage and transfer system or from an appropriate alternate source. This does not affect the capability of the emergency diesel generators to perform their function.

Bus Tie-Breakers

The specifications for the 480 volt safeguards buses, B03 and B04, and the 4160 volt safeguards buses, A05 and A06, direct an independent lineup of power distribution, specifically stating that a normal lineup must be achieved (all safeguards buses associated with a unit are powered through their normal supply breaker with all safeguards bus tie-breakers open) prior to taking a unit critical and during subsequent power operation. Operability of the safeguards buses is based on maintaining at least one on-site AC power source and associated distribution system operable during accident conditions coincident with an assumed loss of offsite power and a single failure in the other on-site AC source. This includes a failure of a tie-breaker to trip, which under certain conditions could result in an overload and a loss of the associated

diesel generator. The LCOs permit abnormal power distribution lineups for periods of time in order to facilitate such items as maintenance of normal supply breakers or transformers. In such cases, bus independence may be relaxed under the conditions specified in the LCO.

Extended use of safeguards bus tie-breakers is allowed under specified, controlled conditions. For example, when a unit is fully defueled, safeguards and safe shutdown systems and equipment dedicated to that unit are not required. However, spent fuel pool cooling must be maintained. By limiting the loads supplied by the cross-connected buses, the potential for loss of a diesel generator due to overloading caused by the failure of a tie-breaker to open is minimized. Operability of shared safeguards systems such as auxiliary feedwater and service water must be maintained as required by their applicable LCOs.

The bus tie-breaker specifications have provisions that the required redundant decay heat removal for the shutdown unit and the required redundant shared engineered safety features for the other unit are operable. The specification that applies only to the defueled condition does not have the provision for the required redundant decay heat removal for the shutdown unit. It has provision for verifying the adequacy of a single train of spent fuel pool cooling in lieu of the consideration of decay heat removal for a reactor in cold shutdown.

Loss of All Alternating Current Power (10 CFR 50.63)

The configuration of the emergency power system at PBNP is an important factor in determining the coping duration and methods for coping with a station blackout. The addition of two new emergency diesel generators changes the emergency power system configuration. In letters between WE and the NRC it has been stated that the addition of emergency diesel generators at PBNP was being considered and that additional information would be submitted to the NRC describing the affects of new diesels on station blackout rule compliance. Currently, PBNP is a 1 out of 2 shared emergency diesel configuration and the PBNP Gas Turbine G-05 is used as an alternate AC power source for station blackout rule compliance (10 CFR 50.63 Loss of All Alternating Current Power).

The new emergency diesel generator configuration is intended to allow sufficient flexibility such that if one emergency diesel generator becomes inoperable in each train the remaining operable emergency diesels can be placed in automatic to place PBNP back into the current 2 shared diesel configuration. By using this flexibility of the emergency power system, the additional emergency diesel generators do not change the status of PBNP for station blackout.

If more than two emergency diesel generators are operable, one could be used as an alternate AC power source based on excess capacity and excess redundancy. The excess capacity of the diesel generators is shown by the ability of one emergency diesel generator to provide sufficient power to maintain safe shutdown in both units. The excess redundancy is based on the same fact that one diesel per train provides sufficient power, excess redundancy is achieved when more than two emergency diesel generators are operable. A letter will be provided to the NRC explaining this change in Station Blackout status for PBNP before the additional diesels are placed into service.

Fire Protection (10 CFR 50.48)

Fire protection will be provided that meets existing 10 CFR 50.48, 10 CFR 50 Appendix R, and FSAR Chapter 9.6.1 requirements. This modification will provide better separation of the Train A and Train B switchgear. The lack of separation in the vital switchgear room was originally addressed by installation of the alternate shutdown (switchgear room bypass) modification.

The proposed Technical Specifications include the appropriate safe shutdown area limiting conditions for operation in Table 15.3.4-1.

Interim Configurations

Prior to the connection of any of the new emergency diesel generators, the emergency AC power configuration for Point Beach is two emergency diesel generators. One Train A emergency diesel generator is the standby emergency power supply for the Unit 1 (1A05) and Unit 2 (2A05) buses. The equipment identification for this EDG is G-01. One Train B emergency diesel generator is the standby emergency power supply for the Unit 1 (1A06) and Unit 2 (2A06) buses. The equipment identification for this EDG is G-02.

The first interim configuration will be established during the Unit 2 refueling outage currently scheduled for September/October 1994. The new emergency diesel generator that will be the standby emergency power supply for Unit 2, Train B (2A06) will be connected. The equipment identifier for this EDG is G-04. G-02 will no longer be a standby emergency power supply for Unit 2, Train B (2A06). G-02 will continue as the standby emergency power supply for Unit 1, Train B (1A06). G-01 will continue as the standby emergency power supply for Unit 1, Train A (1A05) and Unit 2 Train A (2A05). This configuration will exist for approximately 6 months.

The second interim configuration will be established during the Unit 1 refueling outage currently scheduled for March/April 1995. The new emergency diesel generator that will be the standby emergency power supply for Unit 1, Train B (1A06) will be

connected. The equipment identifier for this EDG is G-03. G-04 will continue as the standby emergency power supply for Unit 2, Train B (2A06). G-04 will also be established as a backup standby emergency power supply for Unit 1, Train B (1A06). G-02 will be removed from service to be changed to a Train A standby emergency power supply. G-01 will continue as the standby emergency power supply for Unit 1, Train A (1A05) and Unit 2 Train A (2A05). This configuration will exist for approximately 6 months.

The third interim configuration will be established during the Unit 2 refueling outage currently scheduled for October/November 1995. G-02 will be established as the Unit 2, Train A standby emergency power supply. G-01 will continue as the standby emergency power supply for Unit 1, Train A (1A05) and become a backup for Unit 2 Train A (2A05). G-04 will continue as the standby emergency power supply for Unit 2, Train B (2A06) and backup for Unit 1, Train B (1A06). G-03 will continue as the standby emergency power supply for Unit 1, Train B (1A06) and become a backup for Unit 2 Train B (2A06). This configuration will exist for approximately 6 months.

The final configuration will be established during the Unit 1 refueling outage currently scheduled for April/May 1996. G-02 will be established as the backup Unit 1, Train A (1A05) standby emergency power supply and continue as the standby emergency power supply for Unit 2 Train A (2A05). G-01 will continue as the standby emergency power supply for Unit 1, Train A (1A05) and backup for Unit 2 Train A (2A05). G-04 will continue as the standby emergency power supply for Unit 2, Train B (2A06) and backup for Unit 1, Train B (1A06). G-03 will continue as the standby emergency power supply for Unit 1, Train B (1A06) and backup for Unit 2 Train B (2A06).

The proposed Technical Specification changes in this Technical Specification change request provide appropriate LCO requirements, surveillances and bases for all of the described interim configurations and the final configuration of PBNP for this modification.

Probabilistic Safety Assessment

In a letter dated June 30, 1993, Wisconsin Electric provided the response to Generic Letter 88-20, "Individual Plant Examination for Severe Accident Vulnerabilities, 10 CFR 50.54(f)" to the NRC. The individual plant examination for PBNP provided in that letter was a probabilistic safety assessment (PSA). Section 6.2 of the PSA is called "Plant Improvements." In that section, the addition of two new emergency diesel generators is briefly described. The PSA states:

Additional EDGs: although not initiated as a result of the Point Beach IPE, a project to install a 3rd and 4th

emergency diesel generator at PBNP is currently in the design and procurement phase. Construction of the new EDG building to house these EDGs recently started. The 3rd EDG is expected to be operational by the end of 1995. The completion of this project is roughly estimated to reduce the PBNP CDF (core damage frequency) by an additional 9 - 11%.

Conclusion

The new emergency diesel generators are being installed to reduce the vulnerability of PBNP to an LCO that would require both units to be shutdown based on EDG inoperability. The emergency AC power configuration using the new and original emergency diesel generators will provide the capability and capacity to allow one EDG to be inoperable in each train without being in an LCO on either unit if the remaining emergency diesel generators are placed in automatic mode for the bus normally supplied by the inoperable diesel generators. When more than two emergency diesel generators are available, the emergency AC power system will have more capability and capacity than the original system.

10 CFR 50.59 Safety Evaluations for this modification conclude that it is not an unreviewed safety question for the purposes of 10 CFR 50.59. The new emergency diesel generators and the reconfiguration of the emergency power system for Point Beach will be in accordance with all the appropriate FSAR, design basis, and licensing basis requirements.

The PBNP Technical Specifications must be changed to account for this change in the emergency AC power configuration. These proposed changes provide appropriate limiting conditions for operation, action statements, allowable outage times, surveillances and bases for this modification, including interim configurations, for the Point Beach Nuclear Plant Technical Specifications.

TECHNICAL SPECIFICATION CHANGE REQUEST 166
"NO SIGNIFICANT HAZARDS CONSIDERATION"

In accordance with the requirements of 10 CFR 50.91(a), Wisconsin Electric Power Company (Licensee) has evaluated the proposed changes against the standards of 10 CFR 50.92 and has determined that the operation of Point Beach Nuclear Plant, Units 1 and 2 in accordance with the proposed amendments does not present a significant hazards consideration. The analysis of the requirements of 10 CFR 50.92 and the basis for this conclusion are as follows:

1. Operation of this facility under the proposed Technical Specifications will not create a significant increase in the probability or consequences of an accident previously evaluated.

The Point Beach Nuclear Plant Final Safety Analysis Report (PBNP FSAR) shows that the original emergency diesel generators and the associated support systems and connections do not cause or affect the probability of any accident evaluated in the PBNP FSAR. The additional emergency diesel generators, the associated support systems and connections, and reconfiguration of the emergency AC power system will not change this. The emergency AC power system does not initiate any accident previously evaluated in the PBNP FSAR.

The limiting conditions for operation and allowable outage times proposed in this license amendment request are consistent with the current requirements in the PBNP Technical Specifications. The proposed change in the required emergency diesel generator (EDG) inspection interval, from annually to the time as recommended by the EDG manufacturer, will continue to maintain the operability and reliability of the EDGs. Therefore, the probability of occurrence of an accident previously evaluated in the FSAR is not increased by the proposed Technical Specifications.

The consequences of the accidents previously evaluated in the PBNP FSAR are determined by the results of analyses that are based on initial conditions of the plant, the type of accident, transient response of the plant, and the operation and failure of equipment and systems. The new emergency diesel generator installation will meet the requirements for emergency power sources for PBNP.

General Design Criterion (GDC) 39 as describe in the PBNP FSAR, states, "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 and protection systems required to avoid undue risk to the health and safety of the public. This power source shall provide this capacity assuming a failure of a single active component."

The limiting conditions for operation and allowable outage times proposed in this license amendment request are consistent with the requirements in GDC 39 and the current Technical Specifications for PBNP. Therefore, this proposed license amendment does not affect the consequences of any accident previously evaluated in the PBNP FSAR, because the factors that are used to determine the consequences of accidents are not being changed.

2. Operation of this facility under the proposed Technical Specifications change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The PBNP FSAR shows that the original emergency diesel generators and the associated support systems and connections do not cause any accident evaluated in the PBNP FSAR. The additional emergency diesel generators, the associated support systems and connections, and reconfiguration of the emergency AC power system will not change this, because the new emergency diesel generators will meet the requirements for emergency power sources for PBNP. Additionally, these changes do not introduce any type of system or component malfunction that would create the possibility of a new or different kind of accident from any accident previously evaluated.

The limiting conditions for operation and allowable outage times proposed in this license amendment request are consistent with the requirements in GDC 39 and the current Technical Specifications for PBNP. The proposed change in the required EDG inspection interval, from annually to the time as recommended by the EDG manufacturer, will continue to maintain the operability and reliability of the EDGs.

Therefore, the proposed Technical Specification changes for the addition of two diesel generators and changing the required EDG inspection interval do not create the possibility of an accident of a different type than any previously evaluated in the FSAR.

3. Operation of this facility under the proposed Technical Specifications change will not create a significant reduction in a margin of safety.

The new diesel generator and emergency AC power system reconfiguration design and installation are being and have

been performed to meet or exceed the original system design requirements. The emergency diesel generators provide power to the safety equipment that operates to maintain the margins of safety. The new diesel generators and emergency AC power configuration will continue to satisfy this requirement.

The limiting conditions for operation and allowable outage times proposed in this license amendment request are consistent with the requirements in GDC 39 and the current Technical Specifications for PBNP. The proposed change in the required EDG inspection interval, from annually to the time as recommended by the EDG manufacturer, will continue to maintain the operability and reliability of the EDGs.

Therefore, the proposed Technical Specification changes for the addition of two diesel generators and changing the required EDG inspection interval do not reduce the margin of safety.
