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10 CFR 50.4
10 CFR 50.90

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U.S. NUCLEAR REGULATORY COMMISSION
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Gentlemen:

DOCKETS 50-266 AND 50-301
TECHNICAL SPECIFICATIONS CHANGE REQUEST 180
TECHNICAL SPECIFICATIONS SECTION 15.3.5, INSTRUMENTATION SYSTEM,
4.16KV DEGRADED VOLTAGE, 4.16KV LOSS OF VOLTAGE AND
480 V LOSS OF VOLTAGE PROTECTION FUNCTIONS
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 Section 15.3.5, "Instrumentation System."

DESCRIPTION OF CURRENT LICENSE CONDITION

Technical Specification Section 15.3.5, "Instrumentation System," specifies the limiting conditions for operation for the plant instrumentation system. Table 15.3.5-1, Specification 9, provides the setting limit and time delay for the degraded voltage protection function. Table 15.3.5-1, Specification 10, provides the setting limits and time delays for the 4.16KV and 480 V loss of voltage protection functions. Table 15.3.5-3, Specification 4.a.i, provides the operability requirements for the 4.16KV degraded voltage protection function. Table 15.3.5-3, Specification 4.a.ii, provides the operability requirements for the 4.16KV loss of voltage protection function.

A001

PROPOSED CHANGES

The description of proposed changes, safety evaluation, no significant hazards consideration, and the edited Technical Specifications pages are provided as attachments to this letter.

It has been determined that the proposed amendments do not involve a significant hazards consideration, authorize a significant change in the types or total amounts of any effluent release, or result in any significant increase in individual or cumulative occupational exposure. Therefore, we conclude that the proposed amendments meet the requirements of 10 CFR 51.22(c)(9) and that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared.

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

Sincerely,

R. A. Newton for

Bob Link
Vice President
Nuclear Power

CAC/jg

Attachments

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

Subscribed and sworn before me on
this 27th day of April 1995.

Jacqueline Gorecki
Notary Public, State of Wisconsin

My commission expires 10-27-96.

TECHNICAL SPECIFICATION CHANGE REQUEST 180
DESCRIPTION OF PROPOSED CHANGES

These proposed Technical Specifications changes to the 4.16KV degraded voltage, 4.16KV loss of voltage, and the 480 V loss of voltage protection functions are necessary to provide appropriate specifications for these features. Recent modifications to PBNP raised the transformer tap settings on the low voltage station auxiliary transformers, changed the types of relays that are used for the 4.16KV degraded voltage and 480 V loss of voltage protection functions, and included a safety injection signal input to shorten the time delay for the 4.16KV degraded voltage protection function. Analyses and evaluations have been completed that incorporate the effects of these modifications into the electrical system distribution system analyses for PBNP. The following proposed Technical Specifications changes account for these changes to the electrical distribution system analyses for PBNP.

Proposed Technical Specification Changes

Change Table 15.3.5-1, Specification 9, to remove the ±½% tolerance associated with the degraded voltage setting limit of ≥3959 volts and reduce the setting limit to ≥3937 volts. The inclusion of a tolerance for a setting limit that is required to be greater than or equal to a value is unnecessary. This reduces the possibility of misunderstanding this Technical Specification setting limit. The proposed setting limit reduction is the result of analyses performed for this protection function.

Change Table 15.3.5-1, Specification 9, to include a shorter time delay setting limit of 6.47 seconds for coincidence with Safety Injection, reduce the time delay setting limit without safety injection from 60 to 54 seconds, and delete the voltage dependence statement for the time delay. This change is necessary to appropriately specify the time delay requirement for this modified protection function. The voltage dependence portion of the time delay requirement is no longer needed, because the time delay is not dependent on voltage.

Change Table 15.3.5-1, Specification 10.a, to remove the ±2% tolerance, add a "≥" symbol, and lower the 4.16KV loss of voltage protection function setting limit to 3156 volts. This change is similar to the change described above for the degraded voltage protection function. The loss of voltage protection function will actuate appropriately if the relays are found to be at or above the setting limit of 3156 volts. The inclusion of a tolerance for a setting limit that is required to be greater than or equal to a value is unnecessary. This change will reduce the possibility of misunderstanding this Technical Specification setting limit.

Change Table 15.3.5-1, Specification 10.a, from a time delay of ≤1 sec ±10% to a time delay of 0.7-1.0 sec and delete the voltage dependence statement for the time delay. This time delay change is necessary to ensure that the 4.16KV loss of voltage protection function is appropriately coordinated with the 480 V loss of voltage load shedding protection function. The 0.7 second minimum time delay provides a sufficient margin to allow the 480 V load shedding to occur. The 1.0 second maximum time is less than the previous time delay maximum of 1 second plus 10%. The voltage dependence portion of the time delay requirement is no longer needed because the time delay is not dependent on voltage.

Change Table 15.3.5-1, Specification 10.b, from the bus references of (A05, A06) to (B03, B04). The (A05, A06) bus references are incorrect for this protection function. The A05 and A06 buses are 4.16KV. The identification of the A05 and A06 buses for this protection function were incorrectly introduced into this specification as part of Technical Specifications Change Request 161, Amendment No. 137 (Unit 1), and Amendment No. 141 (Unit 2). The appropriate bus references for this protection function are B03 and B04, which are the 480 V safeguards buses that the relays for this protection function monitor. This change is administrative only.

Change Table 15.3.5-1, Specification 10.b, from a time delay of ≤.75 sec ±10% at 0 volts and ≤3.5 sec ±20% at 90% of voltage setting to a time delay of ≤0.5 sec and delete the voltage dependency statement. This time delay change is necessary to ensure that the 480 V loss of voltage load shedding protection function is appropriately coordinated with the 4.16KV loss of voltage protection function. The 0.5 second maximum time delay provides a sufficient margin to allow the 480 V load shedding to occur before the 4.16KV loss of voltage protection function actuates. The voltage range for the time delay function is no longer necessary because previous modifications installed relays that allow the setting of a definite time to trip over the entire voltage range.

Change Table 15.3.5-3, Specification 4.a.ii, to include the note associated with the "**" for 2-out-of-3 logic for the loss of voltage function. This is being done by placing the "**" after the "2/bus" in the "Minimum Operable Channels" column for the 2-out-of-3 logic row. This change is necessary to invoke the appropriate actions for one inoperable channel. The note associated with "**" is the standard guidance for meeting the minimum operable channels with 2/3 logic. This should have been included in the Technical Specification Change Request 178.

Change the basis for section 15.3.5 to include the following information about the modified 4.16KV degraded voltage protection function:

> A degraded voltage condition coincident with a safety injection signal causes the 4.16KV degraded voltage protection function to actuate with a shorter time delay. This prevents starting of engineered safety features, that have safeguards sequence time delays greater than this short time delay, under degraded voltage conditions. The safety injection signal from each unit is provided as an input to the degraded voltage protection for each 4.16KV safeguards bus. The operability requirements for the safety injection protection function are provided in this Technical Specifications section. The safety injection input from a unit to the degraded voltage protection function is only required to be operable when safety injection is required to be operable for that unit. If the safety injection input is found to be inoperable during periods when the safety injection protection function is required to be operable, the applicable actions for inoperability of the 4.16KV degraded voltage protection function must be entered.

TECHNICAL SPECIFICATION CHANGE REQUEST 180
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. These amendments propose to revise Technical Specifications to incorporate appropriate Limiting Conditions for Operation, setting limits and time delays for the degraded voltage and loss of voltage protection functions.

4.16KV Degraded Voltage Protection Function

Degraded voltage relays are installed on each of 4.16KV Safeguards Buses: Unit 1 A05, Unit 1 A06, Unit 2 A05, and Unit 2 A06. The purpose of these relays is to detect lower than acceptable voltage levels for continuous operation of ESF equipment supplied from these buses. These relays generate the signal to disconnect the safety-related 4.16KV buses from the preferred off-site source. This causes an undervoltage condition on the safety-related buses which actuates the 4.16KV and 480 V loss of voltage protection functions, causing the emergency diesel generators to start and provide power to these buses, and shedding of the 480 V engineered safety features (ESF) and some non-ESF loads.

We have completed electrical system modifications to establish appropriate 4.16KV degraded voltage protection and to ensure reliability of the preferred power supply to the safeguards buses. These modifications included replacement of the 4.16KV degraded voltage protection relays and raising the low voltage station auxiliary transformer tap settings approximately 2%. We have also improved our electrical distribution system analyses to include more accurate determination of voltages during steady-state and transient conditions.

Additionally, we are currently modifying the degraded voltage protection logic to include a shorter time delay if the degraded voltage condition occurs coincident with a safety injection signal from either unit. The modifications for Unit 1 buses were completed during the spring 1995 refueling outage. The modifications for the Unit 2 safeguards buses are expected to be completed during the fall 1995 refueling outage. In the interim, we have reduced the time delay setting to 10 seconds to provide appropriate compensation for this situation until these modifications are completed.

The calculations to determine the appropriate Technical Specifications setting limit, with these enhancements included and further refinement of the calculation inputs, have been completed. The results of these calculations show that the 4.16KV degraded voltage setting limit of ≥3937 volts is adequate. The time delays associated with this setting limit vary based on the coincidence of a safety injection signal from either unit. The time delay without a safety injection signal in either unit is required to be <54 seconds. When these modifications are completed, a safety injection (SI) signal in either unit will require the time delay associated with this protection function to be shortened to <6.47 seconds.

Calculations show that the degraded voltage setting limit of ≥3937 volts with the time delay limits of <6.47 seconds in coincidence with SI and <54 seconds without SI, provide appropriate protection of the engineered safety features during degraded voltage conditions. Three degraded voltage scenarios are evaluated as follows:

1. **Safety injection signal coincident with degraded voltage:**

   In this situation, the degraded voltage protection function must actuate quickly enough to prevent inoperability of engineered safety features equipment (due to low voltage induced failures) which is about to be sequenced on or is already running. With the coincidence of the safety injection signal, the degraded voltage function would actuate in <6.47 seconds. In that time, the high head safety injection pump breaker would receive a closure signal, at approximately 0 seconds, and the low head safety injection pump breaker would receive a closure signal, at approximately 5 seconds. Additionally, some other engineered safety features such as motor-operated valves, station battery chargers, service water pumps, and containment cooling fans would be operating.

   All the aforementioned loads will remain operable for at least 6.47 seconds under degraded voltage conditions. The actuation of the degraded voltage protection function would cause the normal supply breaker for the 4.16KV safeguards buses to open, thus ending the degraded voltage condition. Power restoration would be initiated by actuation of the loss of voltage protection function on each of the affected safeguards buses. The subsequent sequencing of ESF equipment will occur as described in the PBNP FSAR, as required.

2. Degraded voltage with delayed safety injection:

The engineered safety features equipment that is operating during the degraded voltage condition prior to the safety injection would be expected to remain operable as described below in Item 3. After the safety injection occurs, the sequencing and operability of ESF equipment would be as described in Item 1 above.

3. Degraded voltage without safety injection:

In this situation, it is expected that the only safeguards equipment that would be operating are the station battery chargers, service water pumps, and containment cooling fans. The maximum time delay setting limit for degraded voltage actuation without coincident safety injection is <54 seconds. With no signals causing any ESF loads to sequence automatically, it is expected that no ESF loads would be started during the degraded voltage condition. The ESF loads that are already operating can operate for at least one minute at terminal voltages of 75%.

The voltage supplied to the PBNP 345KV switching station from the offsite power transmission system will not be reduced such that the lowest ESF load terminal voltage is <75% for one minute, without the rapid decrease of voltage to levels that would actuate the loss of voltage protection function. Therefore, the ESF loads that are running would remain operable. The ESF loads that are not running would also remain operable because they would not be started during the period of degraded voltage.

These evaluations show that the degraded voltage protection function will initiate the necessary actions to maintain operability of ESF equipment. Therefore, the degraded voltage setting limit of ≥3937 volts, with the time delay limits of <6.47 seconds in coincidence with SI and <54 seconds without SI, is appropriate and justified.

4.16KV Loss of Voltage Protection Function

The 4.16KV loss of voltage protection function causes the following:

1. A trip signal to the associated normal 4.16KV safeguards buses power supply breakers.

2. A start signal for the associated emergency diesel generators.

3. A permissive for the closure to the emergency diesel generator output breakers to repower the buses that have lost voltage.

The changes proposed by this Technical Specifications change request provide the appropriate setting limit and time delay for this protection function. The setting limit is being changed to remove the ±2% tolerance and add an "equal to or greater than symbol." This setting limit for the 4.16KV loss of voltage protection function is not being raised or lowered, only clarified to show that the setting limit requirement is a minimum value for this protection function.

The time delay for the 4.16KV loss of voltage protection function is being changed to a more limiting time delay range. Previously the Technical Specifications time delay for this function was required to be ≤1 sec ±10%. The proposed change will establish 0.7 seconds as a lower limit for the time delay. This is based on evaluation of the coordination of this protection function with the 480 V loss of voltage load shedding function. Proper coordination between the 4.16KV and 480 V loss of voltage functions is maintained by preventing the 4.16KV function from occurring faster than the 480 V function. This is necessary to prevent the emergency diesel generator from reenergizing a safeguards bus prior to the actuation of the 480 V load shedding function, which will allow the ESF loads to be sequenced as analyzed. The upper limit of the time delay of 1.0 seconds is less than the previous Technical Specifications requirement of ≤1 second ±10%.

The applicable footnote for the 2-out-of-3 logic change for the 4.16KV loss of voltage function was inadvertently left out of the License Amendments 161 and 165 for Units 1 and 2, respectively. The proposed change includes the addition of the "**" footnote reference for the 2-out-of-3, 4.16KV loss of voltage protection function. The footnote associated with the "**" provides the appropriate instructions for the situation where one channel is inoperable for 2-out-of-3 protection logic.

Therefore, the proposed changes for the 4.16KV loss of voltage function will establish the appropriate Technical Specifications operability requirements, setting limit format, and time delay for this protection function.

480 V Loss of Voltage Protection Function

The 480 V loss of voltage protection function causes the ESF loads to be shed from the safeguards buses after voltage drops low enough to actuate this feature. The reset of at least two of the three 480 V loss of voltage relays allow sequencing of the ESF loads on the associated safeguards bus.

The proposed changes correct the incorrect bus references, reduce the maximum time delay, and remove the voltage dependence associated with the time delay for the 480 V loss of voltage, load shedding, protection function. The incorrect bus references were inadvertently introduced into this specification during the processing of License Amendments 137 and 141, for Units 1 and 2, respectively. The maximum time delay for this protection function is being reduced to 0.5 seconds to maintain proper coordination between the 4.16KV and 480 V loss of voltage functions.

Proper coordination between the 4.16KV and 480 V loss of voltage functions is maintained by preventing the 4.16KV function from occurring faster than the 480 V function. This is necessary to prevent the emergency diesel generator from reenergizing a safeguards bus prior to the actuation of the 480 V load shedding function, which will allow the ESF loads to be sequenced as analyzed.

The 0.5 second maximum time delay provides a sufficient margin to allow the 480 V load shedding to occur before the 4.16KV loss of voltage protection function actuates. The voltage range for the time delay function is no longer necessary because previous modification of the relays allowed the setting of definite time trip over the entire voltage range.

Therefore, the proposed changes for the 480 V loss of voltage function will establish the appropriate Technical Specifications bus references and time delay for this protection function.

Conclusion

These proposed changes provide appropriate limiting conditions for operation, action statements, allowable outage times, setting limits, and time delays for the Point Beach Nuclear Plant Technical Specifications for the 4.16KV degraded voltage, 4.16KV loss of voltage, and 480 V loss of voltage protection functions. Therefore, continued safe operation of PBNP is assured by these proposed Technical Specification changes.

TECHNICAL SPECIFICATION CHANGE REQUEST 180
"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 probabilities of accidents previously evaluated are based on the probability of initiating events for these accidents. Initiating events for accidents previously evaluated for Point Beach include: control rod withdrawal and drop, CVCS malfunction (Boron Dilution), startup of an inactive reactor coolant loop, reduction in feedwater enthalpy, excessive load increase, losses of reactor coolant flow, loss of external electrical load, loss of normal feedwater, loss of all AC power to the auxiliaries, turbine overspeed, fuel handling accidents, accidental releases of waste liquid or gas, steam generator tube rupture, steam pipe rupture, control rod ejection, and primary coolant system ruptures.

   This license amendment request proposes to correct some minor errors, include appropriate operability requirements for the modification to include the safety injection signal in the time delay for the 4.16KV degraded voltage protection logic, slightly lower the degraded voltage setting limit, change the format of the 4.16KV degraded voltage and loss of voltage setting limits, and change the time delays associated with the 4.16KV degraded voltage, 4.16KV loss of voltage and 480 V loss of voltage protection functions.

   These proposed changes do not cause an increase in the probabilities of any accidents previously evaluated because these changes will not cause an increase in the probability of any initiating events for accidents previously evaluated. In particular, these proposed changes affect time delay and format of the setting limits associated with the 4.16KV degraded voltage, 4.16KV loss of voltage, and 480 V loss of voltage protection functions. These are protection functions and do not cause accidents.

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 changes proposed in this license amendment request provide appropriate limiting conditions for operation, action statements, allowable outage times, setting limits, and time delays for the Point Beach Nuclear Plant Technical Specifications for the 4.16KV degraded voltage, 4.16KV loss of voltage, and 480 V loss of voltage protection functions.

The proposed changes affect functions that are required to ensure the proper operation of engineered safety features equipment. The proposed changes do not increase the probability of failure of this equipment or its ability to operate as required for the accidents previously evaluated in the PBNP FSAR.

The modifications to reduce the time delay limit associated with the 4.16KV degraded voltage protection function when the degraded voltage condition is coincident with a safety injection signal, have been designed and installed in accordance with the requirements for PBNP. The probability of occurrence of degraded voltage conditions at PBNP has not been increased. The modifications and proposed Technical Specifications will ensure the proper operation of ESF equipment. These changes do not increase the possibility of failure of this equipment.

Therefore, this proposed license amendment does not affect the consequences of any accident previously evaluated in the Point Beach Nuclear Plant 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.

New or different kinds of accidents can only be created by new or different accident initiators or sequences. New and different types of accidents (different from those that were originally analyzed for Point Beach) have been evaluated and incorporated into the licensing basis for Point Beach Nuclear Plant. Examples of different accidents that have been incorporated into the Point Beach Licensing basis include anticipated transients without scram and station blackout.

The changes proposed by this license amendment request do not create any new or different accident initiators or sequences because these changes to the 4.16KV degraded voltage, 4.16KV loss of voltage, and 480 V loss of voltage protection functions will not cause failures of equipment or accident sequences different than the accidents previously evaluated. Therefore, these modifications and proposed Technical Specification changes do not create the possibility of an accident of a different type than any previously evaluated in the Point Beach FSAR.

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

The margins of safety for Point Beach are based on the design and operation of the reactor and containment and the safety systems that provide their protection.

The changes proposed by this license amendment request provide the appropriate setting limits and time delays for the 4.16KV degraded voltage, 4.16KV loss of voltage, and 480 V loss of voltage protection functions. This ensures that the safety systems that protect the reactor and containment will operate as required. The design and operation of the reactor and containment are not affected by these proposed changes. Therefore, the margins of safety for Point Beach are not being reduced because the design and operation of the reactor and containment are not being changed and the safety systems that provide their protection that are being changed are being modified in accordance with the applicable design and installation requirements for Point Beach Nuclear Plant.