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POWER COMPANY

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Document Control Desk
U.S. NUCLEAR REGULATORY COMMISSION
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Gentlemen:

DOCKETS 50-266 AND 50-301
REQUEST FOR TEMPORARY WAIVER OF COMPLIANCE
DEGRADED GRID VOLTAGE RELAY OPERABILITY
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

The purpose of this letter is to document the basis for the request from Wisconsin Electric Power Company for a 14-day Temporary Waiver of Compliance from Point Beach Nuclear Plant Technical Specification Section 15.3.0, "General Considerations," Specification A.

REQUIREMENT FOR WHICH A WAIVER IS REQUESTED

A summary of the governing Technical Specifications is as follows:

> Specification 15.3.0, the General Considerations for Technical Specification Section 15.3, "Limiting Conditions for Operation," requires the affected unit, which is critical, to be placed in the hot shutdown condition within 3 hours if the conditions prescribed by the LCO cannot be satisfied. Additionally, if the conditions which prompted the shutdown cannot be corrected and the LCO does not specify an additional time period, the unit shall be placed into the cold shutdown condition within 48 hours. The basis for these general considerations is to delineate action to be taken for circumstances not directly provided for in the action statements of the specific LCO and whose occurrence would violate the intent of the specification.

CIRCUMSTANCES SURROUNDING THE SITUATION

Analysis of ABB Impell Corporation Calculation 0870-150-007, Revision 0, which determined the steady state and transient voltage levels at various plant operating conditions, began on approxi-

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mately December 2, 1992. The results of this calculation indicated that there are several safety-related electrical loads which could have voltage levels less than the minimum value required to assure continued operation following a trip of one unit or if one unit was at 100% power coincident with a LOCA on the second unit and the off-site grid voltage was lower than normal.

Operation of electrical equipment at voltages lower than its electrical rating is not desirable because such operation may result in the equipment not properly performing its intended function or may result in damage to the equipment itself. For this reason, existing plant design includes protection against sustained operation of safety-related loads at lower than recommended voltages. Degraded grid voltage relays are installed on each of safety-related 4160V Buses 1A05, 1A06, 2A05, and 2A06. The purpose of these relays is to sense the presence of lower than acceptable voltage levels and disconnect the safety-related 4160V buses from the preferred off-site source, which would then result in the starting of the emergency diesel generators and connect the safety-related 4160V buses to the emergency diesel generators at adequate voltage levels.

The degraded grid voltage relays were installed in the early 1980's in response to an NRC generic letter dated June 2, 1977. At that time, it was determined that the minimum allowable voltage at which all 480V bus safety-related loads could operate was 414V (90% of the nominal 460V rating for the containment ventilation fan motors, which are considered to be most limiting components). It was then determined that a minimum 3797V was necessary on the 4160V safety-related buses to assure 414 volts were available at the fan motors. The results of these evaluations were provided to the NRC as the basis for the degraded grid voltage relay setting of ≥3875V ±2%, which appears in Technical Specification Table 15.3.5-1, Item 9.

On January 7, 1993, analysis of the ABB Impell calculation was completed and indicated that the existing settings for the degraded grid voltage relays installed on the 4160V safety-related buses may be too low to provide adequate protection for all safety-related equipment. Therefore, all 4160V degraded grid voltage protection channels were declared inoperable at 1515 CST, invoking the requirements of Technical Specification Table 15.3.5-3, "Emergency Cooling," Item 4.a, which allows continued power operation for up to 7 days provided the affected buses are being supplied by the associated emergency diesel generators. The Manager's Supervisory Staff (MSS) determined that operation for an extended period of time with all four of the safety-related 4160V buses supplied from the diesel generators was not consistent with maintaining the

minimum level of plant safety given the fact that grid voltage could best be maintained at a high level with both Point Beach units on line. As this decision places PBNP in a condition prohibited by the Technical Specifications, Specification 15.3.0.A was entered at 1515 CST on January 7, 1993. Specification 15.3.0.A requires an operating unit to be placed in hot shutdown within three hours. Shutdown of both PBNP units had begun when, at approximately 1640 CST, the NRC Office of Nuclear Reactor Regulation (NRR) granted a temporary hold of the 3-hour hot shutdown requirement pending formal request for a waiver of compliance. A verbal 14-day Temporary Waiver of Compliance from Technical Specification 15.3.0 was requested and granted by NRR at 1920 CST on January 7, 1993. Both units were subsequently returned to full power.

COMPENSATORY ACTIONS

PBNP Operations Special Order 93-01 was issued on January 7, 1993, which specifies the following compensatory actions. These actions will remain in effect for the duration of this temporary waiver of compliance period:

- The Unit 2 control operator is assigned to monitor and record hourly voltage readings on 4160V Buses A05 and A06 associated with Units 1 and 2.

- System Control (located in Pewaukee, WI) will continue normal monitoring of the 345KV voltage of Bus Sections 1, 2, 3, 4 and 5. If System Control receives a voltage alarm indicating that bus section voltage has decreased to less than 354KV, PBNP will be notified in accordance with normal practice. System Control has also been informed of the importance of maintaining stable system voltage at PBNP.

- Upon notification that system voltage has decreased below 354KV, a dedicated licensed operator will immediately report to the control room and continuously monitor voltage on the A05 and A06 buses associated with Units 1 and 2. The dedicated licensed operator will continue his duties until system voltage remains stable and greater than 354KV.

- The following actions will be taken by the Unit 2 control operator or the dedicated licensed operator when required:

  - If the voltage on either Unit 1 or Unit 2 A05 and/or A06 buses drops below 4100V, System Control will be immediately requested to take action to increase system voltage until all vital bus voltages exceed 4100V.

  - If the voltage on Buses A05 and/or A06 associated with Units 1 and/or 2 drops below 4050V, the on-site combustion turbine generator will be started but not loaded. The combustion turbine will serve as a back-up power supply (20 MWe capacity) to the diesel generators (5.7 MWe total capacity) if needed.

  - If the voltage on Buses A05 and/or A06 associated with Units 1 and/or 2 drops below 4000V, the normal feeder breaker associated with the bus or buses below 4000V will be immediately opened (1A52-57 for 1A05, 1A52-63 for 1A06, 2A52-70 for 2A05, and/or 2A52-76 for 2A06). This will result in the starting of the appropriate diesel generator(s) and the resupply of the bus from the generator(s). Normal voltage from the diesel generator(s) will be verified on any bus which had its normal feeder breaker opened.

- Following any action taken above, the Duty Shift Superintendent (DSS) will place Units 1 and 2 in an operating condition allowed by Technical Specification 15.3.7 consistent with the resulting electrical configuration.

- While this waiver remains in effect, the emergency diesel generators will not be removed from service for maintenance.

SAFETY SIGNIFICANCE AND POTENTIAL CONSEQUENCES

Operation with the present 4160V bus degraded voltage relay settings will not ensure adequate protection of all safety-related equipment under degraded electrical system conditions. Analysis indicates that with the 345KV bus voltage at or below 351KV, a LOCA

would cause the 480V bus voltage to be below the minimum required. Operation of equipment at lower than its electrical rating is not desirable because such operation may result in equipment not properly performing its intended function or may result in damage to the equipment itself. Without stated compensating actions, this is unacceptable due to the need to prevent loss of safeguards performance.

JUSTIFICATION FOR THE DURATION OF THE WAIVER

The requested 14-day time period for the waiver will be sufficient to allow us to calculate an appropriate degraded voltage relay setting, develop necessary procedures for adjustment or replacement of the 12 affected degraded voltage relays, and submit and obtain approval of the required change to Technical Specification Table 15.3.5-1, Item 9.

SIGNIFICANT HAZARDS CONSIDERATIONS

We have evaluated the continued operation of the Point Beach Nuclear Plant with non-conservative degraded 4160V bus relay setpoints for the 14-day duration of the requested waiver against the standards of 10 CFR 50.92, "Issuance of Amendment," and have determined that the continued operation of PBNP does not result in a significant hazards consideration.

Operation in accordance with the provisions of a waiver does not result in a significant hazards determination if it does not: 1) involve a significant increase in the probability or consequences of any accident previously evaluated, 2) create the possibility of a new or different kind of accident previously evaluated, or 3) result in a significant reduction in a margin of safety. Our evaluation against each of these criterion follows:

Criterion 1

Operation of PBNP in accordance with the provisions of this requested waiver does not result in a significant increase in the probability or consequences of any accident previously evaluated.

Degraded bus voltage is not an initiating event for any accident analyzed in the PBNP updated Final Safety Analysis Report (FSAR). Therefore, the probability of any accident previously evaluated does not increase.

Operation of safeguards equipment for extended periods of time in a degraded voltage condition, in conjunction with a design basis accident, principally a loss of coolant accident (LOCA), could result in the failure of the equipment to perform its safety function. Compensatory measures are being taken for the duration of the requested waiver to ensure a degraded voltage condition is detected and corrective action taken. These actions include:

- Increased surveillance of both internal and external electrical system voltage by a designated licensed operator to provide early warning of a degraded voltage condition.

- Instructions to System Control as to the importance of maintaining 345KV network voltage at PBNP.

- Use of the on-site combustion turbine generator to maintain internal electric system voltage if necessary.

- Use of a dedicated licensed operator under certain conditions to manually initiate action, normally initiated by the degraded voltage relays, in response to a degraded voltage condition prior to voltage reaching a level at which equipment damage could occur.

These actions are taken to ensure a potential degraded voltage is detected and corrected if possible. Therefore, equipment will continue to perform its function as designed and the consequences of any accident previously evaluated will not significantly increase.

Criterion 2

Operation of PBNP in accordance with the provisions of the requested waiver will not create the possibility of a new or different type of accident than any accident previously evaluated.

The design and operation of PBNP are not being altered as a result of this waiver. The period of the waiver will allow time to restore a nonconforming condition. Compensatory measures are being taken to ensure that equipment necessary to prevent and mitigate the consequences of an accident perform its function as designed. Therefore, a new or different type of accident than any accident previously evaluated is not created.

Criterion 3

Operation of PBNP in accordance with the provisions of the requested waiver will not result in a significant reduction in a margin of safety.

Operation of safeguards equipment for extended periods of time in a degraded voltage condition, in conjunction with a design basis accident, principally a loss of coolant accident (LOCA), could result in the failure of the equipment to perform its safety function and, therefore, a reduction in a margin of safety. Compensatory measures are being taken during the duration of the requested waiver to ensure a degraded voltage condition is detected and corrective action taken. These actions include:

- Increased surveillance of both internal and external electrical system voltage by a designated licensed operator to provide early warning of a degraded voltage condition.

- Instructions to System Control as to the importance of maintaining 345KV bus voltage at PBNP.

- Use of the on-site combustion turbine generator to maintain internal electric system voltage if necessary.

- Use of a dedicated licensed operator, under certain conditions, to monitor voltage and manually initiate action, normally initiated by the degraded voltage relays, in response to a degraded voltage condition prior to voltage reaching a level at which equipment damage could occur.

These actions are taken to ensure a potential degraded voltage is detected and corrected if possible. Therefore, equipment will continue to perform its function as designed and a margin of safety will not be significantly reduced.

ENVIRONMENTAL CONSEQUENCES

We have determined that operation in this condition does 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 radiation exposure. Therefore, we conclude that this request meets the categorical exclusion 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.

STATE NOTIFICATION STATEMENT

We notified the Public Service Commission of Wisconsin via telephone at 1000 on January 8, 1993. We will also notify the appropriate State of Wisconsin officials of the requested waiver by copy of this letter in accordance with 10 CFR 50.91(b).

SUMMARY OF COMMUNICATIONS AND APPROVALS

The PBNP Manager's Supervisory Staff (on-site review committee) met and discussed this issue at 1430 on January 7, 1993, concurred with the decision to request this waiver, and concurred with the waiver's contents.

The NRC operations office was notified at 1635 in accordance with the requirements of 10 CFR 50.72(b)(2)(iii)(D), "The licensee shall notify the NRC of . . . any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident."

We received verbal approval of this request for a waiver at 1920 CST on January 7, 1993, from the NRC Senior Resident Inspector.

If you have any questions concerning this information, please contact us.

Sincerely,

Bob Link
Vice President
Nuclear Power

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