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Gentlemen:

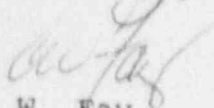
DOCKETS 50-266 AND 50-301  
STATUS UPDATE  
ELECTRICAL DISTRIBUTION SYSTEM FUNCTIONAL INSPECTION  
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

By letter dated August 3, 1990, we provided you with our response to Inspection Reports 50-266/90-201 and 50-301/90-201. In that letter we presented our detailed plans and schedule for each of the deficiencies identified in the inspection report. By letter dated December 28, 1990, we modified our response and schedule for corrective action for four deficiencies and committed to provide you a detailed status of our progress in correcting the deficiencies during the first quarter of 1991.

Attached is our detailed update for each of the deficiencies addressed in the subject inspection report. We have also included an update to one weakness addressed in our August 3, 1990 letter which is not otherwise addressed in these updates. A number of these deficiencies were already closed by the NRC staff in Inspection Reports 50-266/90018, 50-301/90018 dated September 27, 1990, and 50-266/90027, 50-301/90027 dated February 5, 1991, based on corrective actions planned or already taken.

Please contact us if you have any questions.

Very truly yours,

  
C. W. Fay  
Vice President  
Nuclear Power

Attachment

Copies to Regional Administrator, Region III  
NRC Resident Inspector, Point Beach

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Q PDR

## ATTACHMENT 1

### UPDATED RESPONSES TO IDENTIFIED DEFICIENCIES

During the EDSFI, twenty-seven deficiencies were identified by the inspection team as requiring additional review or action by Wisconsin Electric or the NRC to fully resolve the issue or verify corrective action. We responded to these deficiencies on August 3, 1990, and updated our response for four deficiencies on December 28, 1990. This attachment includes our updated response to each of the deficiencies including actions taken and planned. The updates are numbered to correspond with the deficiency number assigned for each item in the inspection report. The second weakness, lack of available design and engineering information is also addressed.

## Weakness (2): Lack of Design and Engineering Information

In our August 3, 1990 response, we described an executive control program for our electrical data base. The purpose of this program was to translate selected information in the data base to create a system model for analysis by appropriate analysis software. The executive control program was also to provide for the control and update of the overall data base. Development of this control program has proven to be more difficult and costly than originally planned. We have therefore postponed the executive program development for future consideration. The functions which were originally to be performed will be accomplished by creating base cases for various types of analyses. Administrative controls for updating the data base and base case models will be implemented. It is our belief that this approach will accomplish the original objectives of this project, to assemble the data and analytical tools necessary for the efficient and consistent evaluations of the electrical distribution systems at the Point Beach Nuclear Plant.

It is anticipated that this effort will be substantially completed by mid-1992. We are willing to meet with the appropriate NRC staff to discuss this change in approach in detail.

90-201-01: Non-Conservative Diesel Generator Steady-State Loading Calculation

ImPELL Calculation 0870-103-011 was performed in early 1990 to document the worst case diesel generator steady state loading. The worst case loading was based on the loss of off-site power, an accident in one unit, and the shutdown of the other unit from power. During the inspection, the inspection team questioned whether pressurizer heaters and a containment ventilation fan were required in the unaffected unit.

We revised IMPELL Calculation 0870-103-011 to reflect that pressurizer heaters are not required in the unaffected unit, to include one containment ventilation fan, and remove certain auxiliary building fan loads which were determined to be unnecessary. The net result of these changes was a decrease in diesel generator loading. No operability concerns were identified. We further revised the calculation to determine the worst case loading resulting from a loss of off-site power, an accident in one unit, and shutdown conditions requiring residual heat removal in the other unit. This resulted in an additional slight decrease in loading. Emergency Operating Procedures were then walked through to insure that they adequately control diesel generator load under emergency conditions. A number of revisions were made to the EOPs as a result of these walkthroughs. Further evaluation indicates that other changes to the EOPs may be necessary. The proposed changes are being evaluated.

The revised diesel generator loading will be included in our 1991 FSAR update which we expect to submit in July.

We had expected to issue a Design and Installation Guideline to describe actions necessary to adequately evaluate changes which may affect diesel generator steady state loading by April 1, 1991. Completion of this task will be delayed until May. In the interim, existing design control processes, along with a greater awareness of diesel generator loading concerns will provide for adequate evaluation of design changes.

90-201-02: Lack of Transient Analysis of Diesel Generator Loading

We have contracted with Sargent and Lundy Engineers to provide the capability to perform transient analysis of the starting and loading of the diesel generators at Point Beach. They have purchased the software necessary to complete such an analysis and are in the process of collecting the data necessary to model the PBNP diesels and loads. Due to difficulty in locating some necessary information, we are pursuing a two step approach. First, we will perform a preliminary analysis utilizing the information presently available. Where necessary, the model will include typical or interpolated values for motor and diesel characteristics. This is expected to be completed by April 1991. Second, we will take actions as necessary to obtain the remaining plant specific data, including the testing of installed equipment if necessary. We expect to complete this information gathering and final analysis during the summer of 1992. The software and data will then be provided to us for future analyses.

An evaluation of the accuracy of the 2400 series Agastat timing relays has been performed. We have determined that the existing relays and settings are appropriate.

Motor torque vs. motor current and motor torque vs. motor speed curves for the safety injection pumps were obtained and calculations documenting the overcurrent relay setting for the SI pump motor breakers have been performed. Similar calculations for the overcurrent trip devices on all circuit breakers supplying major loads which are part of the EDG automatic load sequencing are expected to be completed by April 1, 1991.

The acceptance criteria for the time delay relays which provide for EDG load sequencing specified in ORT-3 have been revised and appropriate procedure revisions issued.

The 1991 FSAR update will reflect the actual timing of the EDG load sequencing.

90-201-03: Incorrect Load Ratings Listed in EOPs

As indicated in our August 3, 1990 response, all actions associated with this deficiency have been completed.

90-201-04: Emergency Diesel Generator Loading as Instructed by  
Emergency Operating Procedures for a Design Basis  
Accident

Emergency Operating Procedures have been revised to provide the operators with additional guidance in managing EDG loads during a Design Basis Accident.

We have completed an evaluation of the overall accuracy of the EDG load metering system. The inaccuracies in the metering system were incorporated into the EDG loading calculations and a discussion of the metering inaccuracies is included in the results section of the analyses.

A modification has been initiated to install more accurate EDG load metering. A formal evaluation of the proposed modification is to be performed.

We have instituted a calibration frequency of once per year for the existing EDG load meter.

We have completed all actions as described in our August 3, 1990, response to this deficiency.



90-201-05: Non-Conformance to Design Basis Criteria for  
Electrical Cable Tray Fill and Cable Ampacity

Cable tray fill requirements defined in the Point Beach Nuclear Plant FSAR limited power and control cable trays to 30% fill and instrument cable trays to 40% fill. A search of our cable and raceway data system (CARDS) identified approximately 280 cases where these fill criteria were exceeded. None of the cases involve an immediate operability concern based on our preliminary evaluations. Final evaluation is continuing and is expected to be completed prior to the end of 1991.

Interim guidance on allowable fill was issued to all responsible engineers in June 1990. A design guideline was developed for cable and raceway design which includes cable and raceway fill requirements and is included in the modification checklist. This guidance provides for cases where strict fill requirements may be exceeded. However, these cases must be individually evaluated including derating the cabling as appropriate.

The 1991 FSAR update will correct the fill requirements removing any conflicts or ambiguity.



90-201-06: Lack of Assessment of Available Short-Circuit Current  
Due to High Battery Temperature

We performed a calculation to determine the short circuit current at all distribution buses which are part of the 125 Vdc systems assuming maximum possible battery temperature. The adequacy of the protection and coordination for the two original plant DC buses has been evaluated. No immediate operability concerns were identified.

A modification has been initiated to correct deficiencies in the DC system protection and coordination. Portions of this modification which provide for adequate protection of circuits originating from lower level buses, and coordination of the protective devices on these circuits with the main DC buses are expected to be completed by the end of 1991. Additional changes required to insure that breakers in the main DC buses are capable of interrupting high level faults will be completed by mid-1992. Our intention is to complete these modifications as part of the installation of the new swing safety-related battery. This modification will also require significant changes and possible replacement of the main DC buses. Due to the difficulty in making significant modifications to the main DC buses and the potential risks with removing them from service since the buses are common to each unit, we have determined it is prudent to make such changes in a single effort.

90-201-C7: Inadequate Seismic Evaluation for Modification to the  
4160 Vac Safeguards Bus Tie-Breaker

The 4160 Vac Safeguards Bus Tie-Breaker was placed in the racked out position to alleviate single failure concerns which may result in the spurious closure of the breaker. Following the identification by the inspection team that this configuration may not be seismically qualified, the breaker was removed from the cubicle and placed in an appropriate storage area. Removal of this breaker from its cubicle does not present an Appendix R or other operational concern. Procedures have been revised to reflect this configuration and the FSAR 1991 update will reflect this change. We consider this item closed.

90-08: Single Failure of Safeguards 480 Vac Bus Tie-Breaker

In addition to the corrective actions taken outlined in our August 3, 1990, response which included removal of control power fuses, posting of operator aids at the breakers, and various procedure revision; we initiated a modification to provide breaker position indication in the control room when the control power fuses are removed. This modification is presently undergoing engineering evaluation and is expected to be installed by October 1991.

90-201-09: Incorrect Safety Classification and Non-Conformance  
with Separation Criteria of Control Cabling of 480 Vac  
Bus Tie-Breaker

The immediate concerns with incorrect classification and possible non-conformance with separation requirements were alleviated with the removal of the control power fuses in response to Deficiency 90-201-08. We have evaluated the classification and separation of the control power cabling and have determined that the control power cabling should be reclassified as safety-related. Since a single breaker separates redundant 480 Vac buse, the potential failure of control cabling which could result in breaker mispositioning is a single failure concern. We have taken actions to maintain the control circuits in a de-energized state except under controlled conditions. Physical separation of the control cabling from other cables will not completely alleviate this single failure concern and is not being pursued at this time.

These control power cables will be reclassified as safety-related and our CARDS database updated to reflect the reclassification by June 1991.

90-201-10: Non-Conformance with FSAR Separation Criteria and  
Potential for Common-mode Failure of Both CCW Pumps

Promptly after identification by the inspection team of this potential common-mode failure problem with the CCW pumps, temporary modifications were performed to disable the auto start circuitry of the "B" CCW pumps and designating these pumps as the preferred pump for operation. Permanent modifications were subsequently performed on the Unit 2 pumps to correct the separation problems with the autostart circuitry. Modifications to correct the problem with the Unit 1 pumps will be completed by June 1, 1991 as planned.



90-201-11: Use of Non-Qualified Components in Safeguards Bus  
Breaker Control Circuits

An evaluation was performed to determine the proper classification of the miscellaneous relay racks and components. We determined that the racks should be classified as QA, safety grade, Seismic Class I. CHAMPS has been updated to reflect this classification.

Our evaluation of the racks for seismic adequacy using SQUG methodology determined that to meet Class I criteria, the miscellaneous relay racks be tied to the racks next to them which are the safeguards instrument racks. Additional evaluations of the seismic adequacy of rack components, primarily relays will be completed by July 1991. In our August 3, 1990 response, we stated that we expected this upgrade of the racks could be scheduled for June 1991 dependent on the results of this evaluation and necessary corrective action. Since upgrading of the miscellaneous relay racks to Seismic Class I will require us to enter and modify the safeguards racks, we determined the best time to accomplish this modification is during unit outages. Therefore, we plan to complete this upgrade during the Unit 2, Fall 1991, outage and Unit 1, Spring 1992, outage. All modifications will not be completed until June 1992.

90-201-12: Vulnerability of Switchgear Control Power to Seismic  
Event that Opens Manual Transfer Switches

The knife switches which allow selection of normal or alternate control power to the 4160V and 480V bus breakers have been tested in both Units 1 and 2. The measured opening force on each knife switch is greater than that necessary to insure the knife switches remain closed in a seismic event. We have received SQUG documentation that the knife switches are acceptable and have determined that modification or replacement of these knife switches to better secure them under seismic conditions is not necessary. We therefore consider this item closed.



90-201-13: Non-Conforming Diesel Generator Sequence Logic

Testing indicated that even though the diesel generator output breakers were not interlocked to prevent closing if the generator was not up to speed and voltage, it would be up to speed and voltage prior to closing. We have performed an evaluation and determined that periodic testing is adequate to insure output voltage is at or greater than 100% nominal system voltage when the breaker closes. Our evaluation has been reviewed by the company's system protection group and they concur with our determination that an interlock to prevent the generator output breaker from closing if the generator is not up to speed and voltage is not necessary. The FSAR will be revised during our 1991 update to adequately reflect this configuration.

We will implement testing on an annual basis through our normal call-up system to insure generator speed and voltage are adequate prior to the output breaker closing.

90-201-14: Excessive DC Voltage Applied to Equipment Terminals

As stated in our December 28, 1990 update, evaluation of DC components to determine the maximum rated voltage is continuing. At this time, we have not identified any components not capable of operating at present float voltage levels. This evaluation is still expected to be completed by July 1991. The battery manufacturer has recommended that we not reduce system float voltage due to possible detrimental effects on the batteries.

We are continuing to work toward installation of an additional swing safety-related battery and a nonsafety-related battery to be completed in mid-1992. This may allow for the reduction of battery float voltages by the removal of an additional cell. Any such decision will be based on the evaluation described above.

90-201-15: Inadequate Fuel Oil System Seismic Category I  
Classification

The status of this item is as stated on our December 28, 1990, update. Modifications to seismically support the fuel oil pumphouse stairs and to seal the floor and provide floor drains in the upper portion of the pumphouse are still expected to be completed by July 31, 1991. A modification to seismically support the fire protection piping in the lower portion of the pumphouse has been initiated and is also expected to be complete by July 31, 1991. The evaluation of the facade structure in the vicinity of the fuel oil transfer pump power supply conduit and cable tray and the need to reroute cabling is on schedule for completion by September 1, 1991. We are also evaluating the feasibility of relocating the fuel oil transfer pumps to an appropriately qualified area.

90-201-16: Fuel Oil Cloud Point Substantially Higher Than  
Required

The status of this item is as stated in our December 28, 1990, update. A fuel oil specification has been approved and fuel on-site in the above ground tanks has been blended to achieve an appropriate cloud point for the winter weather conditions at Point Beach. Technical Manuals and procedures have been reviewed and no changes as a result of the revised specification have been identified.

We consider all actions associated with this item to be complete.

90-201-17: No Procedure to Control Upgrade of Fuel Oil System to Safety-Related Status

QP 2-1, "Upgrading of Non-QA Scope Systems to QA Scope Status," which addresses the upgrade of systems to QA Scope was approved March 1, 1991 and distributed the week of March 4, 1991. We consider this item complete.

90-201-18: Undocumented Upgrade of Fuel Oil System to Quality Assurance Status

Our evaluation of the fuel oil system for upgrade to QA scope identified approximately twenty-five action items for resolution. This evaluation was reviewed and accepted by the plant staff on July 25, 1990. The items identified for resolution include system testing, material history reviews, and support reviews. These items are scheduled for resolution and are being tracked through our normal administrative systems. We will be reviewing this evaluation against the requirements in the revised QP 2-1 (see Deficiency 90-201-17). Any additional items for upgrading the system to safety-related status and QA-scope identified during this review or changes in the previously identified actions will also be resolved.

90-201-19: Procedure 4.12.22, Revision 13, Deficient for  
Delivering Fuel Under Emergency Conditions

Appropriate revisions to PBNP 4.12.22 were issued on July 13,  
1990. We consider all action on this item complete.



90-201-20: Feasibility of Appendix R Scenario Inadequately  
Investigated by the Licensee

The fuel oil gravity drain calculation considering system modifications and the revised fuel oil blend will be revised following the completion of the fuel oil gravity flow tests. The cold weather flow test has been performed and demonstrated adequate flow for supplying fuel to the diesel generator day tanks in an Appendix R scenario. During performance of the flow test, we noted that fuel oil temperature remained above outside ambient air temperatures due to the heating in the fuel oil pumphouse. Even with the heat secured for 24 hours, pumphouse temperatures and therefore fuel oil temperatures in piping internal to the pumphouse remained above 45 degrees. The warm weather flow test is expected to be performed during the month of June 1991.

90-201-21: Non-Conservative Calculation for EDG Room Temperature

As stated in our August 3, 1990 response, we consider the heat rate and temperatures determined by actual testing to be more accurate and realistic than the manufacturer's calculated heat rate and more appropriate for determining diesel generator room temperatures. However, a reevaluation of the diesel generator room temperatures under various conditions to verify our conclusions is on schedule for completion in May 1991. Modifications if necessary will be recommended based on this review and evaluation.

90-201-22: Inadequate Physical Independence of Redundant Class IE  
Cables

We have identified the required corrective action for the 25 cases of inadequate cable separation identified in our review of the CARDS data base. Those indicated separation concerns which were determined to be labelling and/or cable and raceway system errors have been corrected. Modifications to correct other separation concerns which did not require an outage to complete are also corrected. The corrective actions which require a Unit 1 outage will be performed during the spring refueling outage and are expected to be complete by June 1991.

Additional upgrades of the computerized cable and raceway system described in our August 3, 1990, response are proceeding on schedule, with the exception of the executive control program (See update to Weaknesses[2]).

90-201-23: Potential Common Mode Failure of Turbine-driven  
Auxiliary Feedwater Pump Automatic Start

As indicated in our August 3, 1990 response, this problem was isolated to the Unit 2 pump. A 72-hour LCO was entered and a modification performed, rerouting the cables to obtain the required separation. Our corrective actions on this item are complete.

90-201-24: Venting Steam on Safety-Related Cables

A temporary modification was completed in September 1990 to shield these cables from the vented steam. All nonsafety-related cables have been meggered and found satisfactory. A modification to the steam vent piping has been initiated and will be installed prior to December 1, 1991 to minimize steam venting near the cable in question. Replacement of the affected safety-related cables will be performed under maintenance work requests and should be completed by June 1991 as originally scheduled. Work plans for cable replacement were not completed by the end of 1990 as originally planned but will be completed and approved in time to accomplish the cable replacement on the projected schedule.

90-201-25: Inadequate Program for Calibration of Protective Relays

Routine Maintenance Procedures (RMPs) were generated and approved in October 1990 to cover all safety-related relays not covered by the Point Beach technical specifications. Appropriate relay tolerance settings were incorporated into these procedures. A formal calibration program for the test equipment was established in January 1991. Quality Assurance indoctrination was provided for all personnel involved in this relay calibration in October 1990. We consider all action required to correct this deficiency complete.

90-201-26: Inadequate Surveillance Procedure for Elgar Inverters

A revision to RMP-45 was issued in January 1991 which established how to determine the inverter logic board settings and establishes the surveillance periodicity for the low voltage shutdown feature. We have also evaluated other features of the station battery chargers and inverters and have identified additional features which require periodic surveillance. We intend to incorporate these surveillances into existing or new procedures as appropriate during the remainder of 1991.



90-201-27: No Acceptance Criteria in Routine Maintenance  
Procedure 46 for Locating Grounds

More sensitive test equipment for detecting and measuring system grounds has been obtained. RMP-46 was revised in December 1990 to include the updated ground acceptance criteria.

Tracking and trending programs have been established for DC system grounds as well as cell specific gravity and voltage have been established.

We consider all actions necessary to address this deficiency complete.