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March 22, 1993

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

Gentlemen:

DOCKETS 50-266 AND 50-301
LICENSEE EVENT REPORT 93-002-00
INOPERABILITY OF BOTH EMERGENCY DIESEL GENERATORS
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

Enclosed is Licensee Event Report 93-002-00 for Point Beach Nuclear Plant, Units 1 and 2. This report is being submitted in accordance with the requirements of 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition prohibited by the plant's Technical Specifications." This report describes a situation that caused a blown fuse in the metering circuit for one emergency diesel generator while the other emergency diesel generator was already out of service for maintenance.

Please contact us if there are any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Bob Link'.

Bob Link
Vice President
Nuclear Power

CAC/jg

Enclosure

cc: NRC Resident Inspector
NRC Regional Administrator, Region III

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ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (2150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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Point Beach Nuclear Plant, Unit 1	0500026693	0	02	0	02	OF 06

TEXT (If more space is required, use additional NRC Form 366A's) (17)

EVENT DESCRIPTION

The limiting condition for operation in Technical Specification 15.3.7, "Auxiliary Electrical Systems," states that one EDG may be inoperable for a period not exceeding 7 days provided the other diesel generator is tested daily to ensure operability and the engineered safety features associated with this diesel generator are operable. On February 15, 1993, EDG G-01 was taken out of service for its annual maintenance outage. Daily testing of EDG G-02 was being conducted as required by Technical Specification 15.3.7.

On February 18, 1993, the daily operability test of EDG G-02 commenced at about 0800 hours. The instructions being used to perform this test are contained in Technical Specification Surveillance Procedure TS-2 "Emergency Diesel Generator G-02 Biweekly." The purpose of this test is to assess the operational readiness of Emergency Diesel Generator G-02 as required by Technical Specifications. The basic method used in the test to demonstrate operability is to start and load EDG G-02. The test was being performed by one operator in the control room in coordination with one operator in the EDG G-02 room.

At about the same time as the operability test of EDG G-02, other operations, engineering, and maintenance personnel began control and indication circuitry functional testing of EDG G-01. This functional testing was being performed while EDG G-01 was still out of service to verify the operability of the EDG G-01 control and output breaker circuitry after the wiring verification that was performed on February 15, 16, and 17. The wiring verification is part of our continuing effort to verify the accuracy of drawings for PBNP. The instructions being used to perform this test are contained in Special Maintenance Procedure SMP-1133-2, "Post As-Built Testing of EDG G-01 Controls and Output Breakers' Circuits Following Wire Tracing in C-02." The functional testing of EDG G-01 circuitry was being performed by one operator in the control room in coordination with one maintenance electrician and one engineer in the EDG G-01 room.

At about 0840 hours, the operator in the control room performing the actions for EDG G-01 control and indication circuitry functional testing turned on the synchroscope switch for the EDG G-01 output breaker to Unit 1. At about 0841 hours, the operator in the control room performing the actions for the EDG G-02 operability test came to a point in the procedure to turn on the synchroscope switch for the EDG G-02 output breaker to Unit 2. There is one synchroscope on Control Board C-02 that is used for all the switching operations for the 13.8 and 4 KV electrical systems. This synchroscope on C-02 can only be used for one synchronizing operation at a time.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

The control switches that are used to turn on the synchroscope for a breaker normally have the handle removed. A single handle is at the front of the Control Board C-02. The handle is locked into the synchroscope control switch when the handle is placed in the synchroscope control switch and turned to the "on" position. The locking-in of the control switch handle is the main method for preventing two or more synchroscope control switches on C-02 from being turned on simultaneously.

The operator performing the operability test of EDG G-02 recognized that the C-02 synchroscope control switch handle was being used by the operator performing the EDG G-01 functional testing and asked when the C-02 synchroscope control switch handle would be available. The Unit 1 control operator overheard the question, took a control switch handle from the C-01 control board, and handed it to the operator performing the EDG G-01 functional testing. The operator performing the EDG G-01 functional testing handed the control switch handle to the operator performing the EDG G-02 operability test. The operator performing the EDG G-02 operability test inserted the synchroscope switch handle and turned the synchroscope switch on. This connected the two synchroscope input circuits, which caused a higher than normal current in the EDG G-02 metering circuitry. This caused a fuse to blow in the EDG G-02 metering circuitry. EDG G-02 was declared inoperable.

As stated previously, EDG G-01 had been taken out of service for its annual maintenance outage on February 15, 1993. Therefore, both Emergency Diesel Generators G-01 and G-02 were considered to be inoperable, a condition prohibited by Technical Specifications. Technical Specification 15.3.0, "General Considerations" section of Technical Specification of 15.3 "Limiting Conditions for Operation," was entered. Technical Specification 15.3.0 requires that the affected units be placed in hot shutdown within 3 hours and in cold shutdown within 48 hours if the condition is not corrected.

The blown fuse was replaced and EDG G-02 was declared operable at 0953 hours. The EDG G-02 daily operability test was successfully completed at 1138 hours. The EDG G-01 maintenance outage continued. Technical Specification 15.3.7 that states one diesel may be inoperable for 7 days remained in effect for the inoperability of EDG G-01.

Both units remained at full power before, during, and following this event. The engineered safety features associated with both diesel generators remained operable during this event.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P&30), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 386A's) (17)

A human performance evaluation was performed to determine the causes and contributing factors for this event. It has been concluded this event was caused by a personnel error and procedural deficiencies.

Personnel failed to recognize that turning the second synchroscope switch to the on position would cause this problem. The functional testing of EDG G-01 was being performed using a special maintenance procedure. EDG G-01 was out of service, equipment isolation tags were in use and visible to the operators. Personnel involved in this event believed that the functional testing of EDG G-01 was being performed in a condition that would prevent this problem.

The procedural deficiencies include lack of a caution in the EDG G-01 functional test procedure (SMP-1133-2) that would have warned the operator that this situation could occur during the circuitry functional testing. Also, the procedure did not provide directions to the operator in the control room to verify actions with resulting indications. Directions for the operator to check the synchroscope and metering indications would have helped the operator recognize that the synchroscope and metering circuitry was being energized by this action.

COMPONENT AND SYSTEM DESCRIPTION

The synchronizing circuitry is used to verify that the frequency, phase, and voltage on each side of breaker are sufficiently compatible to allow the breaker to be closed. The fuse that blew during this event was in the circuitry that provides the inputs to the synchroscope from the output of EDG G-02. The synchronizing circuitry is used to connect an operating EDG to a bus that is energized from another source. It is not used to connect an EDG to a de-energized bus. This circuitry also provides indication for EDG G-02 electrical output (voltage, current, VARS, kilowatts, and frequency).

The IEEE Standard 803A-1983 component identifiers for this report are:

Emergency Diesel Generators	DG
Synchronizing Circuitry	25
Synchroscope	SYN
Synchroscope Hand Switch	HS
Fuse	FU

REPORTABILITY

This Licensee Event Report is provided pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition prohibited by the plant's Technical Specifications."

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

SAFETY ASSESSMENT

During this event, EDG G-01 was out of service for a maintenance outage. A fuse blew in the metering circuitry for EDG G-02 due to personnel error and procedure deficiencies. This blown fuse would not prevent EDG G-02 from automatically starting and loading. However, the control for EDG G-02 was maintained in exercise mode during the trouble shooting of the blown fuse, which disables the automatic starting capability. EDG G-02 was still capable of starting and providing electrical power to the emergency buses by operator action. The blown fuse only affected the ability to synchronize the EDG to a bus already energized from another source and the metering of load, current, frequency, and voltage. The lack of metering capability would make it more difficult for the operator to monitor the EDG performance during an emergency.

CORRECTIVE ACTIONS

The immediate corrective action was to trouble shoot and replace the blown fuse in the metering circuit.

The causes of this event include: personnel involved failed to recognize that turning the second synchroscope switch to the on position would cause this problem and procedural deficiencies.

Corrective actions for this event include:

- Review the Maintenance Procedure Writers' Guides for inclusion of pre-job briefing, delineation of responsibilities, and operator verification of changing indications, and revise these guides as necessary.
- Revise the Operations Instruction OI-35 "Electrical Equipment Operation" to include a caution against turning two or more synchroscope switches on at the same time.
- Evaluate the need for training on this event.
- Communicate to the operators the importance of checking indications prior to switching operations.
- Review the equipment isolation tag-out being used for the emergency diesel generators annual maintenance for inclusion of isolation of the synchronizing circuitry.

All corrective actions are expected to be completed by September 1993.

LICENSEE EVENT REPORT (LER)
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TEXT IF more space is required, use additional NRC Form 306A's (17)

SIMILAR OCCURRENCES

Other Licensee Event Reports that describe events that occurred while one EDG was out of service and electrical system operational errors that affected both trains of Engineered Safety Features include:

Unit 1

LER 88-010 Electrical System Misalignment

Unit 2LER 80-006 Defeat Containment Spray Actuation during Surveillance
LER 80-007 Loss of RHR Redundancy During Surveillance