



**BOSTON EDISON**  
 Executive Offices  
 800 Boylston Street  
 Boston, Massachusetts 02199

Ralph G. Bird  
 Senior Vice President — Nuclear

May 26, 1988  
 BECo Ltr. #88-085

U.S. Nuclear Regulatory Commission  
 Attn: Document Control Desk  
 Washington, DC 20555

Docket No. 50-293  
License No. DPR-35

Subject: NRC Inspection Report 50-293/88-08

Dear Sir:

Attached is Boston Edison Company's response to the Notice of Violation contained in the subject inspection report.

The physical corrective actions for the battery maintenance issue have been completed and the procedures will be completed as described in the attached response.

The corrective actions for the D.C. breakers issue are progressing but are not yet complete. The corrective actions will be completed prior to plant restart.

Please do not hesitate to contact me directly if you have any questions.

  
 R.G. Bird

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Attachment: Response to Violation

cc:

Mr. William Russell  
 Regional Administrator, Region 1  
 U.S. Nuclear Regulatory Commission  
 475 Allendale Rd.  
 King of Prussia, PA 19406

Sr. Resident Inspector - Pilgrim Station

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## Attachment

Boston Edison Company  
Pilgrim Nuclear Power Station

Docket No. 50-293  
License No. DPR-35

### Notice of Violation

As a result of the inspection conducted on February 1-5, 1988, and in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (Enforcement Policy), the following violations were identified:

1. 10 CFR 50 Appendix B Criterion V requires that activities affecting quality shall be prescribed by documented procedures which include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

The Pilgrim Nuclear Power Station safety related battery manufacturer's instruction manual 12-800 "C&D Power Systems stationary battery Installation and Operating instructions manual" section 9.3 requires all corrosion by-products be removed and to check torque values to be 125 inch pound at battery connections and section 3.2.3 requires seismic support side rails be very close to the battery with a gap just enough to permit an index card to be inserted.

Contrary to the above, on February 2, 1988, the licensee Procedures 8.C.14 Revision 20, September 16, 1987 "Weekly Pilot Cell And Overall Battery Check" and 8.C.16 Revision 14, October 5, 1987 "Quarterly Battery Cell Surveillance" did not include the appropriate qualitative and quantitative criteria for removing corrosion by-products, specifying torque values at the battery connections, and establishing the gap between seismic support rails and the battery jars, and it was observed that the battery terminals were corroded at cells 31 through 60 and cell 3 at Battery D2, cell 43 on Battery D1, cell 40 on Battery D3, and there was an excessive gap between the seismic support rail and the battery cell at cell 91 on Battery D3.

### Response To Violation #1

#### Discussion:

Pilgrim Nuclear Power Station (PNPS) Technical Specification sections 4.9.A.2.a and 4.9.A.2.b require that every week the specific gravity, the voltage and temperature of the pilot cell and overall battery voltage shall be measured and logged and that every three (3) months the measurements shall be made of voltage of each cell to the nearest 0.1 volt, specific gravity of each cell, and temperature of every fifth cell shall be logged respectively. PNPS Procedures 8.C.14 and 8.C.16 are used to comply with these Technical Specification requirements and to provide instructions for performing each surveillance.

#### Cause:

The cause of this violation was inadequate procedures for the conduct of maintenance on station batteries. Specifically, procedures did not include acceptance criteria for removal of corrosion by-products, torquing of battery connections and spacing between the battery cells and the seismic support rails.

ATTACHMENT (continued)

Corrective Action Taken and Results Achieved:

Maintenance Requests were written and completed during the NRC inspection to clean the batteries and battery compartments, to clean, grease, and check the torque of the battery connections and to perform a battery discharge test to verify operability. The results of the discharge test revealed 2 faulty cells numbers 47 and 49, in the 125 volt 'A' battery. MR's were written to replace the cells and the discharge test was successfully completed.

Corrective Actions Taken to Prevent Recurrence:

In a joint effort, PNPS Plant Operations and Maintenance personnel are revising Procedures 8.C.14, 8.C.16 and developing a new Procedure 3.M.3-25.1. The revisions incorporate the Technical Specification requirements and acceptance criteria into Procedures 8.C.14 and 8.C.16 (owned by Plant Operations) and the manufacturer's requirements and acceptance criteria into Procedure 3.M.3-25.1 (owned by Plant Maintenance). The new requirements set forth in the two procedure revisions and the new procedure will be incorporated into the Master Surveillance Tracking Program.

Safety Consequences:

The safety consequences of this event were minimal. A review concluded, that based on MR's and the existing, planned and scheduled Maintenance activities the station battery operability would have been verified prior to restart.

Date of Full Compliance:

The MR's to clean the batteries and battery compartments, to clean, torque and lubricate the battery connections and to perform the discharge test were completed in February of 1988. The procedure revisions are expected to be completed and approved by June 1, 1988.

ATTACHMENT (continued)

Notice of Violation:

2. Licensee Technical Specification Section 6.8A requires that written procedures be established, implemented, and maintained that meet or exceed the requirements of ANSI N18.7-1972 and Appendix A of USNRC Regulatory Guide 1.33, Paragraph 5.3.6 of ANSI N18.7-1972 which requires that procedures be provided for the periodic calibration and testing of safety related protective circuits. RG 1.33 Appendix A Section 8(2)(q) requires calibration for emergency power tests.

Contrary to the above on February 2, 1988, the safety related 125 and 250 Volt DC safety related circuit breakers utilized in DC Motor control Centers D5, D6, D8, D9, D10, D17 and D37 did not have written test procedures for calibration and testing of safety related protective circuits and were not tested or calibrated to demonstrate their safety related function.

Response Violation #2:

Discussion:

Pilgrim Nuclear Power Station (PNPS) FSAR section 8.6.5, Inspection and Testing, states, "Periodic tests of the equipment and the system are conducted to detect the deterioration of equipment in the system toward an unacceptable condition." PNPS Technical Specification 3.8.A.5 states "The reactor shall not be made critical unless all of the following conditions are satisfied:..." "The Station and switch yard 125 and 250 volt batteries are operable. Each battery shall have an operable battery charger."

Cause:

Inadequate procedures was the cause of this violation.

Corrective Action Taken and Results Achieved:

Immediate corrective action was taken by the Nuclear Engineering and Maintenance Departments to test 10 of the 39 DC breakers at DC Motor Control Centers. PNPS Procedure 8.Q.3-4, "125/250 V DC Motor Control Center Testing and Maintenance," was revised to include the acceptance criteria established by Nuclear Engineering Department for the 10 DC breakers tested. The 10 DC breakers tested satisfactorily.

Effort to establish additional testing of safety related DC breakers prior to restart from RFO-7 is in progress. The testing plan for the DC breakers and test results will be provided to the Senior NRC Resident Inspector and Region I office prior to restart.

## ATTACHMENT (continued)

### Corrective Actions Taken to Prevent Recurrence:

A coordinated effort between PNPS Nuclear Engineering and Maintenance is under way to develop a periodic testing program for DC breakers. The existing PNPS Procedure 8.Q.3-4 will be revised to include acceptance criteria established by Nuclear Engineering Department for the remaining DC breakers and will be included in the automated Preventive Maintenance Schedule program. This action will ensure that the DC breakers will be inspected and tested periodically to satisfy the requirements of PNPS Technical Specification 6.8.A.

### Safety Consequences:

The Safety Design Basis for the 125V and 250V DC power Systems is that no single component failure will prevent the systems from providing power to a sufficient number of vital DC loads necessary for safe shutdown. A single line to ground fault is the most common type of fault. Since the DC system is ungrounded, this type of fault would not cause overcurrent and undervoltage. Faults to ground are detected and annunciated for operator action. Multiple DC grounds are unlikely because a single ground is promptly located and removed as soon as possible after alarming in the Main Control Room. The type of fault that would cause excessive overcurrent and undervoltage is a line-to-line fault. If this highly improbable single failure occurs anywhere in the DC system it will cause a trip and isolation of DC equipment downstream of the closest isolation device and, in the worse case, would result in the loss of an entire train of the DC system. It will not result in losing both redundant trains because of design basis separation. Loss of either train will not cause loss of its redundant train.

### Date of Full Compliance:

The initial testing of DC breakers will be completed prior to restart from RFO-7. The long-term periodic surveillance testing program for the DC breakers will be in place after restart from RFO-7 but prior to RFO-8.

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