10 CFR 2.201

BOSTON EDISON
Pilgrim Nuclear Power Station
Rocky Hill Road
Plymouth, Massachusetts 02360

March 1, 1993
BECo Ltr. 93-29

E. T. Boulette, PhD
Senior Vice President – Nuclear

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

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

SUBJECT: REPLY TO NOTICE OF VIOLATIONS (REFERENCE NRC REGION I INSPECTION REPORT NO. 50-293/92-81-01 AND 92-81-02)

Dear Sir:

Enclosed is Boston Edison Company's reply to the Notice of Violations contained in the subject inspection report.

Please do not hesitate to contact me if there are any questions regarding the enclosed reply.

E T Boulette

E. T. Boulette

JPC/bal

Enclosure: Reply to the Notice of Violation

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ENCLOSURE

REPLY TO NOTICE OF VIOLATIONS 50-293/92-81-01 AND 92-81-02

Boston Edison Company
Pilgrim Nuclear Power Station

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

During an NRC inspection conducted from November 30 to December 18, 1992, violations of NRC requirements were identified. In accordance with the, "General Statement of Policy and Procedures for NRC Enforcement Actions", 10 CFR Part 2, Appendix C (1990), the violations are listed below:

NOTICE OF VIOLATIONS

10 CFR 50, Appendix B, Criterion V states in part that activities affecting quality shall be prescribed by documented instructions, procedures....and shall be accomplished in accordance with these....procedures.

Contrary to the above, as of November 30, 1992, the licensee's procedures were inadequate concerning an exhaust damper on the "B" emergency diesel generator west side plenum when the damper was found to be closed. Also, the licensee had not included this damper in a plant procedure to periodically verify its correct position. (VIO 92-81-01)

This is a Severity Level IV violation (Supplement I)

10 CFR 50, Appendix B, Criterion XVI states in part that measures shall be established to assure that conditions adverse to quality, such as failures and defective equipment are promptly identified and corrected to preclude repetition.

Contrary to the above, Pilgrim Nuclear Power Station had experienced numerous repetitive failures of the emergency diesel generator fuel oil booster pump belt and had identified the belt as an inadequate design in August, 1988. Failure of PNPS to complete recommended corrective actions for the inadequate design resulted in repetitive failures on July 18, 1991, and December 12, 1992. (VIO 92-81-02)

This is a Severity Level IV violation (Supplement I).

REASON FOR THE VIOLATION (92-81-01)

During the 'B' Emergency Diesel Generator (EDG) overhaul in November of 1993, exhaust dampers on the east and west side plenums were closed in order to keep cold air out of the work area. The workers who closed the dampers are not known. The new damper positions were not recorded on the work package tagout. Following the 'B' EDG overhaul, both dampers were reopened. The dampers are manually operated and are held in position by a wing nut. If a damper is open and the wing nut is not tight, the damper will close under the force of gravity. The 'B' EDG west side plenum exhaust damper wing nut apparently was loosened when it was originally closed. As a result, it closed on its own subsequent to the overhaul. Although Operations Procedure 2.2.108 "Diesel Generator Cooling and Ventilation System" included a system lineup, this lineup did not include the plenum exhaust dampers. Additionally, Operations Procedure 2.2.8, "Standby AC Power System (Diesel Generators)" contained no direction to Operations personnel to perform a ventilation system lineup following maintenance that might affect the lineup.

A review of ventilation system procedures has found that manual duct dampers such as the plenum exhaust dampers are not routinely included in system lineups.

In summary, the out of position exhaust plenum damper resulted from the combination of the failure of personnel involved in the EDG overhaul to revise the tagout to include the dampers and the lack of inclusion of the dampers in the system lineup procedure.

CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED (92-81-01)

Upon discovery of the closed damper, the Nuclear Watch Engineer immediately ordered the damper reopened. The damper was reopened and Problem Report (PR) 92-0594 was generated. Per Drawing M289, each plenum exhaust damper allows 6,500 cfm of the total 215,000 cfm of radiator air flow. The damper was closed only during a portion of the month of November. The impact on EDG cooling was believed to be negligible based on the small flow reduction in a cold weather month. This will be verified by performing an operational test.

Procedure 2.2.108 was revised on December 14, 1992, to ensure the exhaust plenum manual dampers are open as a prerequisite to performing the lineup. Procedure 2.2.8 was revised on December 17, 1992, to require a lineup per Procedure 2.2.108 following any EDG evolution that may have affected the ventilation system lineup.

CORRECTIVE ACTION TO PRECLUDE RECURRENCE (92-81-01)

All manual ventilation dampers that are in the cooling paths to safety-related equipment will be tabulated and verified in proper position by May 31, 1993. These dampers will be included in the appropriate ventilation system lineup procedures by July 31, 1993.

Training of maintenance personnel on tagging requirements is scheduled on the yearly cycle. That cycle should be completed for all maintenance personnel by December 31, 1993. General Employee Training includes a segment on the Tagging Procedure for new employees and contractors.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED (92-81-01)

Full compliance will be achieved when all manual ventilation dampers affecting the cooling of safety related equipment are included in the appropriate ventilation line up procedures. This is scheduled to be completed by July 31, 1993.

REASON FOR THE VIOLATION (92-81-02)

The Belt-Driven Fuel Oil Booster pumps on the Emergency Diesel Generators have had a history of intermittent belt failures at Pilgrim Nuclear Power Station. Due to the installation requirements, the belts are spliced together versus a continuous loop of material. The belts are joined by a metal alligator V-belt fastener clip arrangement stapled to each end of the V-belt. The two clips are joined together by a rocker pin that is held in place by normal belt tension. This belt design was first identified as less than optimal in the November 25, 1987, response to Failure and Malfunction Report (F&M) 87-648. The Emergency Diesel Generator manufacturer, General Electric-ALCO, recognized the design problem and no longer makes or supplies the Belt-Driven Fuel Booster Pump. Engineering Service Request 88-178 requested the conversion to a gear driven pump due to the unavailability of replacement pumps in the event of failure. A Scope and Justification Approval Form (SJA) for replacement of the Belt-Driven design was prepared and approved on August 25, 1988. The Gear-Driven Fuel Pump Conversion Kits were ordered and delivered to Pilgrim shortly thereafter. Three weeks prior to Refuel Outage Number (RFO) 8, Plant Design Change (PDC) 88-19 was delivered on-site for review. At this time it was determined that the PDC could not be implemented as written since two EDG Air Start Motors were mounted in the proposed location of the Gear-Driven Fuel Pump and would need to be removed. It was felt that removal of air start motors in deference to replacing the fuel pump could have actually degraded EDG reliability given that preventive maintenance had been implemented as an interim measure. PDC 88-19 was subsequently revised to remove one Air Start Motor. The Air Start Motor removal was to be temporary until a new conversion kit could be designed to accept all four Air Start Motors. With the outage rapidly approaching and the need for futher PDC revision, a decision was made not to install a design change that was essentially temporary.

Following the July 18, 1991, belt failure (F&M 91-328), the root cause was confirmed as a weakness that could be overcome using current technologies. The conversion to a gear-driven fuel oil booster pump was explicitly suggested as a solution to the design problem in the January 10, 1992, response. A management decision was made to not include a modification into Mid-Cycle Outage (MCO) Number 9 in October 1992 since it was felt the augmented preventive maintenance would be effective as a temporary measure. A second factor in the decision not to modify the pumps in MCO9 was that none of the belt failures ever resulted in a failure of the diesel to start. The failures always occurred during diesel operation. In those situations the electric backup fuel oil pump started and continued to maintain fuel oil pressure. The electric backup pump has a 20 second time delay and, therefore, would not be available to supply fuel on an initial diesel start. Provided the belt driven pump remains operable during the first 20 seconds of a diesel run, the pump would provide the backup function upon loss of the belt driven pump. During all the previous belt failures, the diesels were secured upon receipt of alarms indicating the belt failures.

CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED (92-81-02)

PDC 88-19 was revised and approved for implementation on February 22, 1993. The revision allows for all four air start motors to remain installed and converts the Belt-Driven Fuel Oil Booster Pump to a Gear-Driven Pump. The modification is scheduled to be implemented on the "A" EDG in RFO #9 and on the "B" EDG in MCO #10 In order to reduce the safety significance of modifying only the "A" EDG in RFO #9, either Procedure 2.2.8, "Standby AC Power System (Diesel Generators)", or Procedure 2.4.16, "Distribution Alignment Electrical System Malfunctions", will be revised by the end of RFO #9 to provide the steps to start an EDG with a failed belt. This involves manually starting the backup fuel oil pump prior to starting the EDG.

CORRECTIVE ACTION TO PRECLUDE RECURRENCE (92-81-02)

As described in the response to VIO 92-27-01, we recognize recent findings may suggest existing corrective action processes are not always ensuring timely corrective action for all issues. Ongoing enhancements to the Problem Report (PR) Program will improve the timeliness of corrective action implementation at Pilgrim Station. Although considerable progress has been made with the implementation of the new PR Program, additional efforts are still warranted. Management has a heightened awareness and increased sensitivity to the timeliness issue and we are continuing to monitor progress in this area.

One recent improvement includes establishing goals to lower the average time to resolve open Problem Report evaluations and corrective action items. These goals are being incorporated into the Goals and Objectives of applicable Departments and should help to maintain the proper focus on closing out issues. Also, the average age of open issues has been steadily declining over the past six months. Average age of open issues is included in the PR status report which is distributed to senior management on a monthly basis.

A review of outstanding PRs is planned. This review will focus on open significance level I PRs and those corrective action documents that were converted into PRs when the new Problem Report Program was implemented in March of 1992. The review will include the following:

- Open significance level I PRs will be reviewed to ensure action plans are commensurate with safety significance. This review will be completed by May 31, 1993.

- Corrective action documents converted into PRs will be reviewed to ensure appropriate assignment of significance level and to ensure action plans are commensurate with safety significance. These documents are being selected for review because they may not have been subjected to the same level of screening as PRs written under the new system. This review will be done in two phases with those greater than 2 years in age expected to be completed by May 31, 1993, and remaining PRs by August 31, 1993.

We have also established a task force chartered to make additional recommendations to senior management to address the timeliness of corrective action issue. The task force will meet periodically with management, and a final report containing recommendations is expected before restarting from refueling outage No. 9, scheduled to begin in April of 1993.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED (92-81-02)

Full compliance will be achieved when the Fuel Oil Booster pumps on both "A" and "B" EDG are converted from Belt-Drive to Gear-Drive. This is scheduled to take place during RFO #9 for 'A' EDG and during MCO #10 for 'B' EDG.