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BECo Ltr. #87-166

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

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

Subject: Special Report - Inoperable Electric Fire Pump

This special report is being submitted in accordance with Pilgrim Nuclear Power Station Technical Specification 3.12.B.a. The report is required because the Fire Suppression System Electric Fire Pump (EFP) became inoperable on September 17, 1987 at 1145 hours and could not be returned to operable status within seven days.

The EFP became inoperable when the motor windings failed during pump operation. At the time of failure, the pump was being used to support flushing of piping recently installed and connected to the Fire Suppression System. Pending repair of the EFP motor, the station fire truck was connected to an onsite public fire hydrant as a supplemental source of water. The EFP motor was repaired and the EFP returned to operable status on October 8, 1987 at 1755 hours. Refer to Attachment I for further details.

The mode switch was in the refuel position with the reactor vessel completely defueled and no fuel movement in progress when the EFP became inoperable.

If there are any questions regarding this subject, please feel free to contact me.

R.G. Bird

DWE/la

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ATTACHMENT I

Boston Edison Company
Pilgrim Nuclear Power Station

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The water supply to the Fire Suppression System is delivered by either the EFP or the diesel driven Fire Pump (DFP). The DFP is available for standby and emergency use (loss of AC power). The EFP and DFP are each rated at 2,000 gallons per minute and discharge to the 12" Fire Suppression System header. From each pump, the discharge to the header is provided through individual pipe lines each containing an in-series check valve and isolation valve.

When the EFP motor failed, the DFP was in standby with testing tags (green and white) and capable of autostart and function. The testing tags were related to the flushing of 2" piping recently installed and connected to the discharge line downstream of the DFP check valve. The flow for flushing was being provided by the EFP through the Fire Suppression System header and open DFP isolation valve. The Fire Suppression System was operable when the flushing was being performed.

As a result of the EFP motor failure and a conservative judgment regarding the testing tags, the Watch Engineer notified the NRC Operations Center via the emergency notification system on September 17, 1987 at 1213 hours. Moreover, all hot work was immediately suspended until the DFP was run to assure its operability (for autostart) after the testing tags were removed. Removal of the testing tags did not involve the manipulation of any components.

The EFP motor was sent to the manufacturer (General Electric) for examination and repair. The examination revealed failed motor windings at the connection end and evidence of moisture in the motor internals. The root cause for the motor failure is the introduction of moisture into the motor internals. The repair consisted of cleaning and rework that included rewinding the motor stator and subjecting it to a new type of vacuum-pressure impregnation varnish treatment for a buildup on the winding insulation. The varnish treatment is expected to reduce the likelihood of future failure due to moisture.

Supplemental action taken when the EFP became inoperable consisted of cross connecting the onsite public water supply to the Fire Suppression System via the station fire truck. The connection was accomplished approximately 10 minutes after the EFP became inoperable.