



## LONG ISLAND LIGHTING COMPANY

SHOREHAM NUCLEAR POWER STATION

P.O. BOX 618, NORTH COUNTRY ROAD • WADING RIVER, N.Y. 11792

Direct Dial Number

December 9, 1983

SNRC-989

Dr. Thomas E. Murley  
Regional Administrator  
Office of Inspection & Enforcement - Region 1  
U.S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406

Long Island Lighting Company  
Shoreham Nuclear Power Station - Unit 1  
Docket No. 50-322

Dear Mr. Murley:

On November 1, in accordance with 10CFR50.55(e), we reported verbally to Region 1 a potential deficiency concerning the discovery of cracks in piston skirts taken from each of the Shoreham Emergency Standby Diesel Generators. This letter serves as an interim status report of the analyses and corrective actions conducted to date.

### Description of the Deficiency

As part of the ongoing investigation being conducted by LILCO on the Emergency Diesel Generators, a liquid penetrant examination was performed on the inside of the piston skirt of the #7 piston of Diesel Generator 103 (1R43\*ENGL03). This piston had been removed from service during DG 103 disassembly and inspection. In the course of performing the inspection, linear indications were discovered in the stud attachment boss region where the piston crown is attached to the piston skirt. The piston was then sent to the laboratories of Failure Analysis Associates (FaAA) for further examination. Through destructive examination, it was determined that a fatigue crack was present.

Subsequent liquid penetrant examinations of all pistons from Diesel Generators 101 (1R43\*ENGL01), 102 and 103 revealed the presence of linear indications in the same vicinity as those found on the #7 piston from Diesel Generator 103. In all, 23 pistons were found to have one or more indications.

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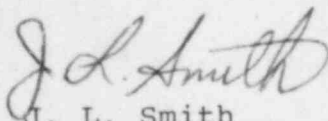
Corrective Action and Action to Prevent Recurrence

In order to conduct additional evaluations, two additional pistons which were determined to have indications were forwarded to FaAA for a more extensive examination. Those pistons also evidenced fatigue cracks, which are described in FaAA's preliminary metallurgical report (attached).

At present, LILCO has replaced all of the piston skirts in all engines with a different and more recent TDI piston skirt design. This design, designated "AE" by TDI, has an increased amount of material in the region of the skirt/crown bolting as well as a revised geometry which will improve the load distribution. In addition, FaAA is conducting finite element modeling of the old (modified "AF") and new ("AE") skirt/crown designs to quantify the expected improvement in the operating stress levels in the skirt/crown attachment boss region. A report addressing this issue, as well as the final results of the metallurgical examinations, is expected to be completed by mid-December and will be forwarded to your attention accordingly.

If you have any questions relative to this matter, please do not hesitate to contact us.

Very truly yours,



J. L. Smith  
Manager, Special Projects  
Shoreham Nuclear Power Station

WMJ:mp

Attachment

cc: Mr. Richard DeYoung, Director  
NRC Office of Inspection & Enforcement  
Division of Reactor Operating Inspection  
Washington, DC 20555

Mr. R. Caruso, NRC NRR  
Mr. C. Petrone, Site NRC  
All Parties Listed in Attachment 1

ATTACHMENT 1

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