



LONG ISLAND LIGHTING COMPANY

SHOREHAM NUCLEAR POWER STATION

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

Direct Dial Number

April 15, 1983

SNRC-873

Mr. James M. Allan,
Acting 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. Allan:

On March 8, 1983, in accordance with 10CFR50.55(e), we reported verbally to Region 1 a potential deficiency concerning apparent cracking in cylinder heads on the Shoreham Emergency Standby Diesel Generators. On April 7, 1983, Mr. R. Gallow of Region 1 granted a one week extension for providing the required 30-day written report. This letter serves as the 30-day written report on this potential deficiency.

Description of the Potential Deficiency

The three diesel generators which are affected were manufactured by the Transamerica Delaval Company of Oakland, California. These diesel generators, 1R43*C-101, 1R43*C-102, and 1R43*G-103, in the Diesel Emergency Power System are designed to provide standby emergency power for multiple plant safety related systems.

The first indication of a cylinder head leak occurred during testing of Diesel Generator 101 (1R43*G-101), when it was noted that the jacket water stand-pipe level continued to drop inexplicably at a rate of 9.25gph. Additionally, it was noted that lower than normal exhaust gas temperatures were being experienced in the #1 cylinder. As a result, an inspection of each cylinder of each diesel generator revealed that water was also present in the #7 cylinder of Diesel Generator 102 (1R43*G-102) and #7 cylinder of Diesel Generator 103 (1R43*G-103).

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A field inspection did not reveal any indications in the heads, so they were returned to Transamerica Delaval for a formal failure analysis and, if necessary, any required repairs.

The results of the failure analysis performed by Transamerica Delaval indicate that in the case of the cylinder heads taken from Diesel Generators 101 and 102, the water leak was in the exhaust passage near the flange in each head and in the case of the head from diesel generator 103, a leak was detected in the fire deck.

Transamerica Delaval also reviewed the three failures from a safety/reliability standpoint and has stated that these failures would not have affected the engine's ability to operate and carry the required load. The small amount of water that may enter the combustion chamber as a result of these anomalies has no effect on the combustion process and is simply blown out of the exhaust system along with the other combustion by-products.

Corrective Action & Action to Prevent Reoccurrence

Transamerica Delaval has improved the design and manufacture of the four-valve steel cylinder head since delivery of the Shoreham engines. Although the manufacturer has advised us that the operability of the engines is not impaired as a result of this condition, LILCO has elected to upgrade the cylinder heads to the latest available design. At present, a program to change out all of the cylinder heads is being developed. The replacement program will be implemented in accordance with startup and outage schedules.

Once the Diesel Generators have completed preoperational testing and have been declared operational, as an interim measure until head replacements are completed on each engine, LILCO will include in the appropriate plant procedures the following steps which Transamerica Delaval has recommended to detect a cylinder head leak:

1. Four hours after completion of a test run, bar the engine over with the indicator cocks open.
2. Eight hours later, again bar the engine over with the indicator cocks open.

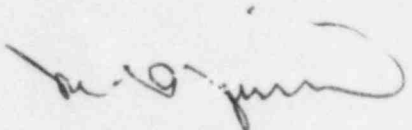
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3. Twelve hours later, again bar the engine over with the indicator cocks open. Then, roll the engine using starting air.
4. If water is detected, replace the cylinder head.
5. If no water is detected, there are no leaks and the engine can standby until the next test period.

The implementation of the cylinder head replacement program, as well as incorporating Transamerica Delaval's recommendations for interim leakage detection into the normal plant procedures will improve the reliability of the Emergency Diesel Generators. Further, these steps will prevent any potential impact on the operability of the engines as a result of this concern.

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

Very truly yours,



M. H. Milligan
Project Engineer
Shoreham Nuclear Power Station

WMJ:mp

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

Mr. J. Higgins, Site NRC
"All parties listed in Attachment 1"

ATTACHMENT 1

Lawrence Brenner, Esq.
Administrative Judge
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Peter A. Morris
Administrative Judge
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. James H. Carpenter
Administrative Judge
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Daniel F. Brown, Esq
Attorney
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Bernard M. Bordenick, Esq.
David A. Repka, Esq.
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

James Dougherty
3045 Porter Street
Washington, D.C. 20008

Herbert H. Brown, Esq.
Lawrence Coe Lanpher, Esq.
Karla J. Letsche, Esq.
Kirkpatrick, Lockhart, Hill
Christopher & Phillips
8th Floor
1900 M Street, N.W.
Washington, D.C. 20036

Mr. Marc W. Goldsmith
Energy Research Group
4001 Totten Pond Road
Waltham, Massachusetts 02154

MHB Technical Associates
1723 Hamilton Avenue
Suite K
San Jose, California 95125

Stephen B. Latham, Esq.
Twomey, Latham & Shea
33 West Second Street
P.O. Box 398
Riverhead, New York 11901

Ralph Shapiro, Esq.
Cammer and Shapiro, P.C.
9 East 40th Street
New York, New York 10016

Matthew J. Kelly, Esq.
State of New York
Department of Public Service
Three Empire State Plaza
Albany, New York 12223