

HUNTON & WILLIAMS

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August 10, 1983

Lawrence Brenner
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. George A. Ferguson
Administrative Judge
Atomic Safety and Licensing
Board Panel
School of Engineering
Howard University
2300 6th Street, N.W.
Washington, D.C. 20059

Dear Judges:

I write to advise the Board of a condition observed recently on the Shoreham diesel generators. LILCO and Delaval have concluded that this condition is not reportable under 10 CFR § 50.55(e) and does not present a safety concern or affect the operability of the diesels. Nevertheless, and even though the matter is not within the scope of the pending contention, LILCO is advising the Board of the matter in light of the pending contention.

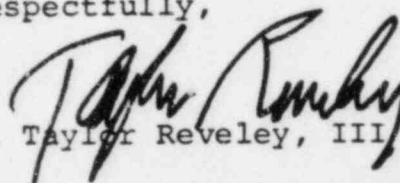
Attached is a copy of a letter dated August 3, 1983 from William Lanny McHugh to Neal M. Rudikoff describing this condition and assessing its significance. In essence, LILCO personnel, in the course of replacing the old cylinder heads with the new ones, observed and reported cracks in the web of the bridge between the two sides of the subcover assembly at

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the fuel injector indentation. These cracks were observed in 5 of the 24 bridges. As the attached letter from Delaval reflects, the purposes served by the bridge are such that the cracks do not affect the function or operability of the diesels. Indeed, as the letter also reflects, the engine can operate and meet its requirements and functions even if the bridge is entirely removed.

Respectfully,

A handwritten signature in dark ink, appearing to read "W. Taylor Reveley, III". The signature is fluid and cursive, with the first name "W." and last name "Reveley" being more prominent.

W. Taylor Reveley, III

79/869

Attachment

cc: All Parties

~~Transmitted~~
Delaval



Engine and Compressor Dept.
300 85th Avenue
P. O. Box 2181
Oakland, California 94621
(415) 577-7400

7
August 3, 1983

Long Island Lighting Company
Shoreham Nuclear Power Station
P. O. Box 618
Wading River, New York 11792

Attention: Mr. Neal M. Rudikoff

Subject: Diesel Generators TDI S/N 74010-12
Subcover, Cylinder Head P/N 1A 2780

Reference: LDR 1541

Gentlemen:

During the current planned cylinder head change, cracks were observed in five of the cylinder head subcovers. These cracks extended into the web bridging the two sides of the subcover at the fuel injector indentation, originating at the transition between the web and the boss for the internal subcover hold down bolt on the vertical plane through crankshaft centerline.

There are two different subcover casting revisions on the SNPS Diesels. The original or old style casting had a flat unreinforced web, approximately 5/16 inch thick (nominal), bridging the two sides of the subcover. The new style casting had a web 1/2 inch thick (nominal) with two 1/2 inch ribs. This change was made to the castings in 1974. The two casting revisions were considered functionally identical and interchangeable, hence the LILCO engines had 14 old style subcover castings, and 10 new style castings installed.

The cracks all occurred on old style subcovers with unreinforced webs. The most extensive crack, which

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extended completely through the bridge web separating the two sides of the subcover, occurred on the thinnest subcover web (3/16 inch thick, from DG-102 cylinder 2). Three of the seven 1/4 inch thick webs were cracked and one of the three webs more than 1/4 inch thick had a small crack. None of the ten new style reinforced bridge webs were cracked.

The functions of the subcover bridge are:

- (1) to provide additional clamping forces to the gasket between the subcover and head at the base of the fuel injector indentation, and
- (2) to provide rigidity and prevent distortion of the subcover casting during the foundry's core shakeout and cooling operation and for machining of the subcover.

The bridge does not provide any additional support for the rocker shafts.

These cracks often originate from shrink cracks in the casting and are propagated through cyclic loading of the subcover bridge web resulting from engine firing pressure. The cracks propagate down and across the subcover at approximately a 45° angle until they reach the heavy wall of the injector indentation. They then propagate down the web along the subcover wall to the base of the web. At this point, the stresses are relieved and no additional cracking occurs. TDI's previous experience with cracked old style subcovers has demonstrated that the clamping forces provided by the subcover wall alone, without the bridge web support, are sufficient to prevent lube oil leaks from the pool of oil at the top of the cylinder head. This has been verified at the SNPS by the subcover on cylinder 2 of DG-102 which was cracked completely through the bridge web, thereby eliminating any possible support to the fuel injector indentation from the opposite wall of the subcover, and was not leaking lube oil around the fuel injector indentation.

Based on the facts that the bridge web does not provide additional support for the rocker arm shafts, that the

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Mr. Neal M. Rudikoff

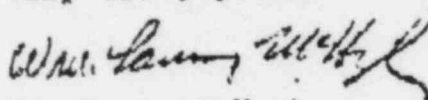
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additional clamping force at the fuel injector indentation is not required for proper gasket sealing, and that once the stresses are relieved by the separation of the subcover sides no additional degradation of the subcover occurs; the structural support provided by the bridge web is not required for Diesel operation. Therefore, the cracked subcovers present no safety or operability problems. The engines may be run with cracked subcover bridge webs, or the subcover bridge web may be removed in its entirety.

If you have any further questions regarding this matter, please do not hesitate to contact me.

Very truly yours,



Wm. Lanny McHugh
Engineer, Customer Service

WLM/mmd

cc: R. Giordenelli
D. Wulf
J. Gee
D. Pratt
G. E. Trussell