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RELATED CORRESPONDENCE

LILCO, October 17, 1984

DOCKETED
USNRC

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

'84 OCT 19 AM 11:00

Before the Atomic Safety and Licensing Board

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

In the Matter of)	
)	
LONG ISLAND LIGHTING COMPANY)	DOCKET NO. 50-322(OL)
)	
(Shoreham Nuclear Power Station,)	
Unit 1))	

STATUS REPORT

The purpose of this report is to inform the Licensing Board of a number of developments relating to the diesel generator hearings.

1. The SER Qualified Load and Confirmatory Testing

Transamerica Delaval, Inc., Owners Group (TDI Owners Group) submitted its Program Plan for Staff review on March 2, 1984. On August 20, 1984, LILCO received the Staff's Safety Evaluation Report (SER) pertaining to this Program Plan. Based on the Staff's review of the TDI Owners Group Program Plan and the status of Phase I of the DRQR, the Staff included provisions in the SER establishing an interim basis for licensing. See SER at § 4.6, pp. 13-19. Among the elements included in the interim basis for licensing was a requirement for certain confirmatory testing. The SER stated the requirement and defined the "qualified load" in the following terms:

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1. For engines where emergency service load requirements involve a BMEP greater than 185 psig, the utility shall provide information demonstrating that crankshafts, pistons and other key engine components (as identified below) which are of the same design as those in the subject engines have operated successfully for at least 10⁻⁷ loading cycles under loading conditions which meet or exceed the severity of the maximum emergency service load requirements for the subject engines. For purposes of this SER, this load level (i.e., the load level above a load corresponding to 185 psig BMEP enveloped by successful operating experience) will be referred to as the "qualified load" for the subject engine. Where appropriate operating experience does not already exist relative to this qualified load, a test of an engine with the same designs as of these key components for 10⁻⁷ cycles will be required to establish an adequate "qualified load" for the subject engines.^{1/}

SER at 13-14.

In order to establish the qualified load for the confirmatory testing, LILCO had to determine the maximum emergency service load requirements for the TDI engines at Shoreham. This involved a two step process. First, LILCO performed an engineering evaluation of the diesel generator bus loading program to ensure that only essential, safety related loads were

^{1/} As the SER notes, this 10⁻⁷ cycle confirmatory testing of the qualified load is not required for those key components for which appropriate operating experience already exists. Thus, this testing is not required for the AE pistons at Shoreham because the Staff has determined that the R5 engine experience with the AE piston, which far exceeds 10⁻⁷ cycles, is applicable to the Shoreham AE pistons. Accordingly, the 10⁻⁷ cycle confirmatory testing is relevant, in the context of the litigation, only to the crankshaft.

placed on the buses during a LOOP-LOCA event. This effort was underway prior to the issuance of the Staff SER and the results, which permitted a reduction in load to 3500 KW, were reported by LILCO in SNRC-1065 and presented to the Board during the July 5 Conference of Parties.

The second portion of the effort involved the use of the actual diesel generator bus loads measured during testing as allowed by the Staff SER. Actual diesel bus loads were determined through both the Integrated Electrical Tests (IET) involving all three diesels as well as additional component-specific confirmatory testing. The compilation of IET data was completed and available on August 17, 1984. Additional component-specific testing was completed circa September 29. After internal engineering review and analyses of these test results, the final qualified load for the Shoreham diesels was confirmed as 3300 KW on October 15, 1984. This week, LILCO is submitting to the Staff for its review and approval an FSAR revision stating the new qualified load and the information to support it.

While working to establish the new qualified load, LILCO also conferred with the Staff concerning aspects of the confirmatory testing required by the SER. LILCO and the Staff have now reached essential agreement on the major aspects of the confirmatory testing to be conducted. Pursuant to this agreement, LILCO is testing Diesel Generator 103 at the new

qualified load of 3300 KW, for a total of 740 hours (the equivalent of 10-7 cycles) with credit to be given for all hours accumulated at or above the new qualified load since the installation of the replacement crankshaft. Approximately 219 hours have been accumulated at or above the qualified load since the installation of the replacement crankshaft. Therefore, 521 hours of operation at the qualified load remained for completion of the test. The 521 hours need not be the result of continuous operation because it is understood and contemplated by LILCO and the Staff that shutdowns during the 521 hours of operation may occur for a variety of reasons such as routine maintenance and surveillance tests.

LILCO commenced the test on Diesel Generator 103 on October 8, 1984,^{2/} and it is currently anticipated that the completion of the test and the post-test inspections will not occur before December 2, 1984.

In addition to the operation of the engine for a total of 740 hours at 3300 KW, LILCO has also undertaken to perform a variety of post-test inspections of various key engine components listed by the Staff in the SER. See SER pp. 8-9. Included among the inspections currently contemplated are liquid penetrant and eddy current inspections, as appropriate, of all

^{2/} LILCO commenced the test prior to the final confirmation of the new qualified load on the basis of preliminary results then available.

fillet areas and oil holes of the crankshaft, except at bearings 1, 2, 10 and 11. With respect to the engine block, pertinent inspections will also be conducted with respect to the cam gallery area and the block top. Strain gauge measurements will also be taken to measure stresses in the cam galley area. As noted, LILCO does not expect to complete the test and the post-test inspections prior to December 2, 1984.

The reduction in the maximum emergency load to 3300 KW does not change the ultimate conclusions stated in LILCO's testimony concerning the adequacy of the crankshaft, pistons and cylinder blocks to perform their intended functions. Rather, the load reduction increases the margin of safety and therefore gives further assurance that Shoreham's TDI diesels can perform their intended function safely and reliably. Similarly, the confirmatory test program undertaken by LILCO also increases assurance that the diesels will perform reliably. LILCO does not, however, seek to supplement or re-open the record at this time to include this information.

The present situation is analagous to that in Commonwealth Edison Co. (Byron Nuclear Power Station, Units 1 and 2), LBP-84-2, 19 NRC 36 (1984). In Byron, the parties litigated allegations concerning the quality assurance programs of certain contractors involved in the construction of the plant. While hearings were underway, the applicant initiated a re-inspection program for the work of the allegedly deficient

contractors. Although some information concerning the re-inspection program was presented to the Board, the record closed prior to completion of the effort. Ultimately, the Board found that the applicant had not met its burden of proof with respect to quality assurance. In explaining its procedural approach, the Board stated:

Recognizing that the matter may not forever be closed, we explain further the significance of our order. The Board considered the alternative of informing the parties now of the substance of our views on the quality assurance issues, retaining jurisdiction over them, and providing for further proceedings before us when the various inspections, investigations and remedial actions become ripe for consideration.

19 NRC at 279. That Licensing Board decided instead to deny the license without further consideration of the re-inspections in progress.

The Appeal Board, however, rejected this approach, noting that the Licensing Board

should have adopted the alternative of "informing the parties now of the substance of [its] views on the quality assurance issues, retaining jurisdiction over them, and providing for further proceedings before [it] when the various inspections, investigations and remedial actions become ripe for consideration.

Commonwealth Edison Co. (Byron Nuclear Power Station, Units 1 and 2), ALAB-770, 19 NRC 1163, 1169 (1984).

In this case, LILCO has and will present evidence which meets its burden of proof with respect to the AE pistons, if

not settled, the crankshaft and the block. This evidence, in large measure,^{3/} does not address the new qualified load. Nonetheless, if after hearing all the evidence, the Board determines that LILCO has not met its burden of proof with respect to any contention, it will face a situation similar to that faced by the Byron Board. In light of the Appeal Board's guidance, it would then be appropriate for this Licensing Board to inform the parties of its views and ask for additional testimony on the lower loads and the confirmatory tests. Thus, LILCO does not seek to re-open the record at this time. If, however, the Board desires additional information now, LILCO stands ready to provide supplemental testimony which would

- (1) describe the testing and analysis performed to develop the maximum actual emergency loads and the results of that testing and analysis;
- (2) describe the confirmatory testing that LILCO has agreed to perform pursuant to the requirements of the Staff's SER; and
- (3) summarize the effect of the 3300 KW actual load level on LILCO's previously stated conclusions regarding the crankshaft, pistons and cylinder blocks.

2. Block Panel Size

The original testimony filed by LILCO on the block was sponsored by 12 witnesses. Such a large witness panel raises substantial practical concerns. Accordingly, LILCO has decided

^{3/} Load levels of 3300 KW and other loads below 3500 KW have been discussed in testimony before the Board. See, e.g., Tr. 22,668-70, 22,809-10, 22,818-19, 23,000-03, 23,070-71.

to reduce the size of the panel by excusing Clinton S. Matthews and Maurice H. Lowrey of TDI, John F. Wallace, a TDI consultant, and Robert K. Taylor of Failure Analysis Associates (FaAA). When the hearing resumes on October 22, 1984, counsel for LILCO will take formal steps to withdraw the testimony sponsored by Messrs. Matthews, Lowrey and Wallace. Mr. Taylor was not the sole sponsor of any testimony and his removal from the panel requires no withdrawal of testimony. Thus, when the hearing resumes on October 22, the LILCO block panel will consist of

Dr. Roger L. McCarthy
Dr. Charles A. Rau
Dr. Clifford H. Wells
Dr. Harry F. Wachob
Dr. Duane Johnson
Mr. Craig Seaman
Mr. Edward J. Youngling
Mr. Milford H. Schuster

LILCO believes this number of block witnesses is manageable and appropriate in light of the testimony filed.

3. Potential Piston Settlement

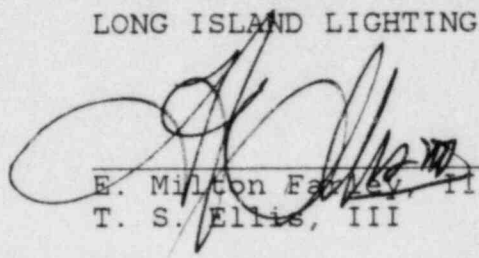
By letter dated October 11, 1984, from Tim Ellis, the Board was advised that LILCO had made a proposal to the County for settlement of the piston contention. On October 16, 1984, Counsel for the County advised LILCO's counsel that LILCO's proposal formed a basis for settlement discussions to proceed. The parties will keep the Board advised of progress in this regard.

4. Cylinder Head Settlement

All parties have now signed the cylinder head settlement agreement in the form originally submitted to the Board. The signed agreement will be presented to the Board at an appropriate time during the week of October 22 for the Board's review and consideration.

Respectfully submitted,

LONG ISLAND LIGHTING COMPANY



A large, stylized handwritten signature in black ink, appearing to read 'E. Milton Farley, III', is written over a horizontal line. Below the line, the name 'E. Milton Farley, III' is printed, with 'T. S. Ellis, III' printed underneath it.

E. Milton Farley, III
T. S. Ellis, III

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DATED: October 17, 1984

LILCO, October 17, 1984

CERTIFICATE OF SERVICE

In the Matter of
LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station, Unit 1)
Docket No. 50-322 (OL)

I hereby certify that copies of STATUS REPORT were served this date upon the following by first-class mail, postage pre-paid, by telecopier, as indicated by an asterisk, or by Federal Express, as indicated by two asterisks.

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