

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

P12:32

Before Administrative Judges:

Lawrence Brenner, Chairman
Dr. George A. Ferguson
Dr. Peter A. Morris

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In the Matter of
LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station,
Unit 1)

Docket No. 50-322-01

January 18, 1985

MEMORANDUM AND ORDER RULING ON ADMISSIBILITY
OF EMERGENCY DIESEL GENERATOR LOAD CONTENTION

Pursuant to the opportunity provided by the Board's December 4, 1984 "Order Confirming Grant of LILCO's Motion to Reopen Diesel Engine Hearing," Suffolk County and New York State, on December 17, 1984, filed a proposed contention challenging the acceptability of LILCO's newly proposed "qualified load" electrical rating of 3300 kw for each of the three Transamerica Delaval, Inc. (TDI) emergency diesel generators (EDGs) at the Shoreham nuclear plant. LILCO and the Staff each filed separate answers on December 27, 1984.

Counsel for LILCO and Suffolk County were informed, in a December 28, 1984 conference call from Judge Brenner, that the Board agreed with LILCO's reorganization of the contention into its specific

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constituent parts (without prejudice to LILCO's objections to the admissibility of some of those parts). Counsel were further informed that using LILCO's designations, parts (a)(v), (a)(vi), (b) and (c)(v) were not admissible, and all other parts were accepted as issues in controversy. Counsel were also notified that for better organization of the hearing, parts (c)(i) and (c)(ii) would be separated out of the EDG load contention and considered as part of the litigation of the issues related to the cylinder blocks. As is generally the case, any necessary further testimony on reopened and supplemented issues shall make use of the existing record to the extent possible. Finally, Counsel were informed that in connection with LILCO's objection to the admissibility of (a)(iv), which was admitted, LILCO could, if it wishes, provide a brief by January 15, 1985, on the specific regulations or other applicable law which, in LILCO's view, mandates exclusion of that part of the contention as a challenge to the so-called "single failure criterion." This order confirms and provides the reasons for the Board's oral rulings. ^{1/}

^{1/} Due to the late hour on Friday, December 28, by which the Board concluded its deliberations after receipt of the LILCO and Staff answers late on December 27, there was insufficient time to set up a conference call with all parties. (The Board's telephone equipment is capable of immediate telephone conferencing with only a maximum of two additional telephone numbers. A greater number of hookups requires resort to the central telephone conference operator switchboard.) However, no substantive or important procedural discussion took place during the call. Its purpose was limited to rapidly reporting the Board's rulings to those parties with the earlier, and, based on experience in this
(Footnote Continued)

The proposed contention, as reorganized in order to attempt to provide, where possible, the requisite reasonable specification (10 C.F.R. § 2.714(b)) of the various subissues, is attached to this order. The NRC Staff had no objection to any part of the contention or bases as proposed by the County, but simply suggested a division into two broad parts which, in the Board's view, would be unnecessarily and improperly ill-defined. LILCO objected in substance to half of the proposed parts of the reorganized contention, as will be discussed in the following seriatim rulings on the constituent parts of the contention:

(a)(i): Admitted without objection.

(a)(ii): Admitted over LILCO's objection. There is a rational basis for LILCO's argument that any issue about the accuracy of the diesel load meter is not unique to LILCO's newly proposed concept of a qualified load, and that the margin between the applicable load limitations and predicted loads has not changed materially so as to render the alleged load meter error more significant. Nevertheless, on balance, the Board finds that the relevance to the controversy of the adequacy of the crankshaft at loads in excess of 3300 kw, as recognized by LILCO's motion to reopen and supplement the record and its resort to

(Footnote Continued)
case, heavier responsibilities for filing testimony. Furthermore, LILCO and the County agreed to rapidly report the Board's oral rulings to the NRC Staff and New York State.

its qualified load proposal, provides sufficient basis to admit this part of the load contention as being within the scope of LILCO's desire to reopen and supplement the diesel phase of this proceeding. ^{2/} Moreover, although theoretically distinguishable, the Board believes it could prove infeasible, as a practical matter, to litigate parts (a)(iii), (c)(iii) and (c)(iv) of the contention, which all parties agree are admissible, without including the issue raised in part (a)(ii).

(a)(iii): Admitted without objection.

(a)(iv): Admitted over LILCO's objection. LILCO's argument that the issue of whether an operator would erroneously connect additional electrical loads to a diesel is not unique to the qualified load concept was not accepted as a reason to bar this part of the contention for the same reason discussed in (a)(ii), above. LILCO's argument that this part of the contention raises an impermissible challenge to Commission law, referred to as the so-called "single failure criterion," was also not accepted. However, LILCO was given the opportunity, before or after

^{2/} The diesel phase itself had its genesis as a reopening to consider a new County diesel contention. The reopening was granted in June 1983 (LBP-83-30, 17 NRC 1132), and was then delayed significantly at the request of all parties after the August 1983 crankshaft failures and subsequent revelations about the adverse quality of certain important components of the TDI manufactured diesels at Shoreham.

the hearing, to provide a brief specifying the regulatory basis for its single failure criterion argument as applied to this part of the contention. ^{3/} The Board will reconsider the admission of this part of the contention, albeit not necessarily before the evidentiary hearing.

The Board notes that should this part of the contention be litigated, this would not mean that the systems must be designed so as to preclude the possibility of operator error causing additional equipment to be connected to the diesels in excess of the qualified load limits.

At this time, LILCO's undetailed argument, and the Board's preliminary view of the NRC regulations and case law on this subject, does not lead us to the conclusion that this part of the contention should be barred from litigation. In part, this is based on our view that the regulatory consideration of the concept of the single failure criterion is grounded in the analysis of design and automatic operation of structures, systems and components, rather than in consideration of errors by operators. Indeed, contrary to the thrust of LILCO's argument, the Board believes that reasonable consideration of the

^{3/} LILCO elected to file its brief on the date set for such a prehearing filing of January 15, 1985. As stated during the conference call, any joint County and State answer is due for receipt by January 25, and the NRC Staff may file its answer by a received date of February 5.

possibility of operator error is appropriate in assessing the capability of the diesel generators. This would appear particularly apt where the normal procedures call for operator action in connecting some loads to the diesels, but only in particular circumstances and time-frames in order to avoid, among other things, loading a diesel generator over its qualified load. The fact that parts of these operator procedures are new due to the new qualified load concept adds force to this consideration. Furthermore, the assumption in LILCO's argument that the alleged operator error could, at the worst, affect only one of the diesels is not a fact proved on the record at this stage of the evidentiary hearing. Part of LILCO's argument, that loss of one diesel out of the three is the single failure which is assumed and beyond that the analysis may not proceed (LILCO answer, at 11), reductio ad absurdum would lead to the result that the known degraded cylinder block of EDG 103 need not be replaced, since failure of EDG 103 is acceptable, and it is impermissible to consider a further failure of either of the remaining two EDG's. ^{4/}

(a)(v): Not admitted. The Board agrees with some of the objections in LILCO's answer, from page 13 (first full paragraph) to page 15. This contention, both as set forth in parts of the originally

^{4/} Judge Morris dissents from this paragraph of this Order at this time, primarily because the Board's reconsideration of part (a)(iv) of the contention has not been completed.

worded County bases (i.e., 1(c)(i) and (iii)-(v) at Joint Motion, at 3 and first para., at 4), and as reasonably summarized in LILCO's specification, is broad and vague, with little notice of what would be litigated and why it would be material; i.e., inter alia, whether consideration of these issues could result in changes in loads on the diesels which would really matter. More importantly, resort to the deposition of the County's witnesses for possible specification and bases demonstrates that the proposed contention suffers fatally from a lack of bases and an overabundance of speculation. See December 18, 1984 deposition of Bridenbaugh and Minor, at 79-85, excerpted in part in LILCO's answer, at 13-15. This is exacerbated by the fact conceded by the County's witnesses that they would not expect such variations in load to be materially large. Deposition, at 85.

(a)(vi): Not admitted. The Board agrees with LILCO's objections to this part, at 16-17. For reasons similar to the Board's rejection of (a)(v), this contention, as set forth by both Suffolk County (bases, at 1(c)(ii)) and LILCO, lacks specificity and bases. The deposition of the County's witnesses emphasizes these fatal deficiencies of this part of the contention, rather than curing them.

(b): Not admitted. The Board agrees with the objections in LILCO's answer, at 17-18. This part of the contention, in essence, argues that given the increases to the loads and the uncertainties alleged in part (a) of the contention, greater margin must be provided

between the predicted electrical loads and the qualified load for the diesels. As LILCO states, this part sets forth the County's remedy for its allegations in part (a). See also, December 18, 1984 deposition of Bridenbaugh and Minor, at 126-27. The Board agrees that part (b) of the contention is at best unnecessarily redundant and should be denied to avoid duplicative litigation. In addition, to the extent admission of this part would arguably include consideration of the margin at other nuclear plants, such litigation would be irrelevant or at least so remotely collateral to the material issues before us as to be digressive without any redeeming usefulness.

(c)(i) and (ii): These two parts are admitted. They serve to alert the Board and the parties of the specifics which the County seeks to pursue with respect to the endurance test of EDG 103 as applied to the cylinder block issues. For better organization of subject matter, these two parts will not be considered with the rest of the admitted parts of this load contention. Rather, they will be considered with the further testimony on the cylinder block issues.

(c)(iii) and (iv): Admitted without objection.

(c)(v): Not admitted. In its commendable effort to fairly include in an organized form all of the constituent specific issues within the County's and State's vaguely organized proposed load contention, LILCO has gone so far as to include this allegation which was never even

touched on in the proposed contention, including the bases, nor in the supporting affidavit. This issue was only a passing interjection by one of the County's witnesses, Mr. Minor, near the end of the deposition of him taken by LILCO (at 120-21). It is not surprising then, and it is no criticism of the County and State which have not even proffered such a contention, that, based on the deposition, we find that this allegation lacks the requisite specificity and bases to be admitted as an issue in controversy.

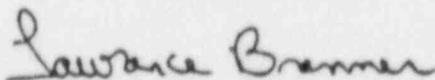
For the reasons stated above, this will confirm that the EDG load contention proposed by the County and State, as reorganized by LILCO, is disposed of as follows:

Parts admitted: (a)(i), (a)(ii), (a)(iii), (a)(iv),
(c)(i), (c)(ii), (c)(iii) and (c)(iv).

Parts not admitted: (a)(v), (a)(vi), (b) and (c)(v).

IT IS SO ORDERED.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD



Lawrence Brenner, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland
January 18, 1985

Attachment: Proposed contention, as reorganized.

Contrary to the requirements of 10 C.F.R. Part 50, Appendix A, General Design Criterion 17 -- Electric Power Systems, the emergency diesel generators at Shoreham ("EDGs") with a maximum "qualified load" of 3300 KW do not provide sufficient capacity and capability to assure that the requirements of clauses (1) and (2) of the first paragraph of GDC 17 will be met, in that

- (a) LILCO's proposed "qualified load" of 3300 KW is the maximum load at which the EDG may be operated, but is inadequate to handle the maximum load that may be imposed on the EDGs because:
 - (i) intermittent and cyclic loads are excluded;
 - (ii) diesel load meter instrument error was not considered;
 - (iii) operators are permitted to maintain diesel load at 3300 KW +/- 100 KW;
 - (iv) operators may erroneously start additional equipment;
 - (v) degraded plant conditions (voltage and frequency fluctuations, pump efficiency changes, and changes in flow resistance) were not considered; and
 - (vi) the actual loads obtained during system testing and used in FSAR Table 8.3.1-1A failed to model accurately system conditions in an accident.
- (b) There is little or no margin between 3300 KW and the maximum emergency service loads for the EDGs, in sharp contrast to emergency diesel generators at other nuclear plants where a substantial margin provides adequate assurance of requisite reliability under GDC 17.

ATTACHMENT TO: MEMORANDUM AND ORDER RULING ON ADMISSIBILITY OF EMERGENCY
DIESEL GENERATOR LOAD CONTENTION - (DATED JANUARY 18, 1985)

- (c) The EDG qualification test run performed by LILCO was inadequate to assure that the EDGs are capable of reliable operation at 3300 KW because:
- (i) DG 103 block was not subjected to the entire 740 hours of testing;
 - (ii) the test results on the DG 103 block are not transferable to the DG 101 and 102 blocks;
 - (iii) operators were permitted to control the diesel generators at 3300 KW +/- 100 KW during the test;
 - (iv) instrument accuracy was not considered; and
 - (v) DG 103 was connected to the LILCO grid during the test rather than supplying only emergency loads as it would in an accident.