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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of)

LONG ISLAND LIGHTING COMPANY)

(Shoreham Nuclear Power Station,
Unit 1))

Docket No. 50-322-OL

JOINT OBJECTIONS OF SUFFOLK COUNTY
AND THE STATE OF NEW YORK TO BOARD'S ORAL ORDER
OF FEBRUARY 22, 1984, AND REQUEST FOR REVISION THEREOF

I. Background

On February 22, 1984, this Board held a special prehearing conference of the parties concerning four proposed contentions of Suffolk County regarding the inadequacy of the emergency diesel generators ("EDGs") at Shoreham. There the Board issued an oral ruling admitting as issues in controversy the County's Contentions 1, 2 and 3 (without the stated bases therefore), rejecting Contention 4, and setting a schedule for discovery and subsequent procedures. Tr. 21,611, et seq. The Board indicated that it intended to issue a written order (as required by 10 C.F.R. Section 2.751a (d)), but that the Board's involvement in another proceeding could delay issuance of that written order. Tr. 21,611, 21,656.

Suffolk County and the State of New York intended to review the Board's written order when issued and, to the extent it did

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not modify the oral order, file objections within five days after service of the written order, as permitted by Section 2.751a. The County has indicated in several documents filed with the Board that the schedule for discovery was proving to be unrealistic and, accordingly, the County would seek its modification.^{1/} Late last week, in response to an inquiry to Judge Brenner's secretary by counsel's secretary, we were informed that the Board's written order would not be issued until the week of April 23 at the earliest, and would be a short order confirming the February 22 oral order in its entirety.

In view of the foregoing, and because the written order will post-date the end of the scheduled discovery period (April 20), Suffolk County and New York State hereby file jointly their objections to the Board's order of February 22, 1984, and request that the order be revised in light of the objections stated herein.

II. Discussion of Objections

A. Contention 4 - Quality Assurance. The Board rejected Suffolk County's Contention 4 on quality assurance on the grounds that it did not meet "the reopening criteria." Tr. 21,613. Suffolk County's Motion to Admit Supplemental Diesel Generator Contentions (January 27, 1984) (the "County's Motion") did plead that all of the contentions met the criteria for reopening the record, and the Board admitted Contentions 1, 2 and 3 on that basis. County's Motion at 16; Tr. 21,612.

^{1/} See, e.g., letter to Board dated March 7, 1984, from counsel for Suffolk County and its enclosed letter dated March 1, 1984, to counsel for LILCO.

Suffolk County and the State of New York submit that the application of the reopening standards to Contention 4 is indistinguishable from their application to Contentions 1, 2 and 3. Contention 4 was timely, in that it was "sufficiently based on the combination of new occurrences . . . sufficient to give rise" to the contention. Tr. 21,612. For example, as shown by the Addendum to the County's Motion, newly released audits by the NRC Region IV of quality assurance at TDI, together with past audits, resulted in a significant Staff position about the ineffectiveness of the TDI quality assurance program. See Addendum at 3; Exhibit 3 to Addendum. Just as the Board found with Contentions 1, 2 and 3, with respect to Contention 4,

[T]he new instances in combination shed new light on the old instances and give new meaning and new significance to instances that were not appreciated as they occurred earlier.

Id. In addition, a number of instances of serious quality assurance deficiencies specified in Contention 4 were new events. See, e.g., particular matters in paragraphs IV.A, IV.B, and IV.D.1 and 2.

The quality assurance deficiencies are clearly evidence of significant safety questions, in the same manner as the evidence of design and manufacturing defects cited in Contentions 1, 2 and 3. The EDGs are classified as safety-related and serve an undeniably important safety function. If they were not designed and constructed in accordance with the requirements of 10 C.F.R. Part 50, Appendix B, as Contention 4 alleges, they cannot be deemed reliable, even in the absence of the many defects actually dis-

covered to date. As Mr. Eisenhut of the NRC Staff stated at the TDI Owners Group Meeting of January 26, 1984 (the transcript of which the Board reviewed prior to the February 22 conference):

[P]rior to licensing, even a low-power license, you are going to clearly have to have a certain level of confidence . . . like accounting for the fact that there were QA problems

Transcript of meeting at 95-96.

Finally, the outcome of the proceeding could certainly be affected by the litigation of the merits of Contention 4. The Staff indicated the critical importance of quality assurance in the context of issuance of an operating license, as quoted above. Given the significance of the EDGs and their reliability to safety, the impact on the result of this proceeding is readily apparent.

The Board erred in its finding that Contention 4 could be excluded because the litigation of Contentions 1, 2 and 3 "would include the quality aspects" of EDG "design, manufacture and performance" and therefore "Contention 4 is not likely to change the result" Tr. 21,613-14. The County and the State do not understand how the issue of whether or not TDI had an effective quality assurance program, and hence whether the EDGs and their components can be deemed reliable and qualified for safety-related nuclear service, can be determined by litigation of actual design or manufacturing defects. Such defects may be evidence of an inadequate quality assurance program at TDI, but they are by no means the only evidence available. Moreover, a finding after

litigation against Contentions 1, 2 and 3 would not necessarily dispose of Contention 4.^{2/}

Nor is litigation of the DRQR a substitute for litigation of Contention 4. The DRQR is an after-the-fact inspection. The adequacy of the DRQR in part rests upon a determination of the adequacy of the TDI quality assurance program. If the quality assurance program was inadequate, then sampling inspections of EDG components, rather than 100% of all parts, would be unsatisfactory, because supposedly identical parts might not be identical. Therefore, to litigate the adequacy of the quality review portion of the DRQR, one must first have made a determination regarding the effectiveness of the TDI quality assurance program. Moreover, if that program were found to have been ineffective, one could expect to find latent defects in the EDGs incapable of discovery by even a 100% inspection. See an elaboration of these points at Tr. 21,535-41 (Dynner).

For the foregoing reasons, Suffolk County and the State of New York urge this Board to revise its February 22 order to admit Contention 4 as an issue in controversy in this proceeding.

B. Schedule for Discovery and Litigation. The Board's order set two periods for document discovery and depositions. The first period was to run from March 1 to March 20, and the second from April 1 to April 20. Tr. 21,618. We believe the Board

^{2/} It appeared at the February 22 hearing that the Board was seeking means to avoid confronting directly County contention 4 concerning the inadequacies of the TDI quality assurance program. Where a serious safety issue is presented, however, and detailed bases are presented (as was the case on Contention 4), it is error for a Board to avoid direct inquiry into the alleged failure to comply with Appendix B.

properly assumed that discovery responses by March 20 would allow the parties to review the results for 11 days and, on the basis of such review, make additional discovery requests for the second period. Unfortunately, discovery has been far more difficult and voluminous than the Board contemplated.

The County made its first request for production of documents from LILCO, its contractors and consultants, on February 29 (Attachment 1 hereto). As of this date (April 10), only a small portion of the requested documents have been produced. See Attachment 2 hereto. LILCO has not objected to the County's requests; on the contrary, LILCO has represented that it is using its best efforts to respond to the requests for documents. For this reason, it would not have been appropriate to complain to the Board or seek a motion to compel discovery, especially in view of the Board's admonitions concerning cooperation of the parties during discovery. See Tr. 21,637-38.

However, apparently the large number of relevant documents requested by the County, coupled with other time demands upon LILCO and TDI, have combined to make responses unrealistic within the time frame envisioned by the Board. TDI suggested that the only effective manner for it to produce the documents requested of it through LILCO was for County representatives to review selected TDI files in Oakland, California. The County readily agreed, and was prepared to review the TDI documents in Oakland in early March. However, TDI could not arrange for the visit until March 22 and 23, after the response date for the first discovery period.

During those two days five County representatives^{3/} reviewed many files in a large room at TDI and identified thousands of relevant documents which TDI agreed to photocopy and send to the County. As of this date -- more than 2 weeks after the inspection of the TDI documents -- the County has not received any of these documents. Nor has TDI yet supplied the County with all of the drawings of EDG components requested many months ago. See Attachment 3 hereto.^{4/}

The effect of these delays in document production has been twofold. First, the County has not taken any of the 27 depositions previously noticed, because these depositions can only be meaningful if they are taken after a review of relevant documents, including those which the deponents may have written. Thus, until there has been receipt and review of the TDI documents, depositions cannot be conducted.

Second, the County's consultants have not been able to review and analyze the relevant documents and drawings necessary for them to reach final conclusions on the issues in controversy. The County has committed to LILCO's counsel to notify them when such

^{3/} LILCO had representatives at TDI reviewing documents at the same time.

^{4/} The documents requested from TDI are directly pertinent to the instant litigation. Many of these documents are described in the attachments hereto, and include: service files showing numerous failures and deficiencies in TDI R-48 diesels and in TDI diesels with components common to those at Shoreham, including failed crankshafts, cracked cylinder heads, cracked pistons, and cracked cylinder blocks; design memoranda concerning the TDI R series diesels and their components; correspondence files with LILCO concerning the Shoreham diesels; and test data showing cylinder pressure and other operating parameters of the Shoreham EDGs and similar TDI diesels.

conclusions are reached, so that LILCO may meaningfully depose the County's consultants. However, because literally thousands of documents remain to be received and analyzed, we cannot yet predict when this will occur.

We can, however, estimate that because thousands of documents still are to be received, their review cannot be completed in the ten or eleven day period originally provided by the Board. Moreover, the number and nature of depositions noticed by both parties will, in our estimation, take over 45 days to complete.^{5/} Accordingly, we hereby request that the Board revise the last discovery response date to a date 70 days following the receipt by the County of the documents identified by the County and to be produced by TDI. The 70-day period will be used for review of the TDI documents, production of the balance of documents requested from LILCO and their review, depositions by all parties, and preparation of reports, analyses and calculations by the County's consultants and their production to LILCO. Because of the enormous volume of relevant documents and the great number of necessary depositions to be taken and analyzed, we request that

^{5/} On March 1, 1984, Suffolk County noticed 26 depositions by letter to LILCO's counsel (see footnote 1). The County later noticed the deposition of another TDI official. Requests have been made for identification of other TDI personnel; when identified, the County may determine to depose them also. Some depositions of key persons may last more than one day. LILCO, for example, has notified the County that their depositions of Professor Christensen and Mr. Eley will last more than one day each. With over 30 depositions being taken, plus travel time to locations in California, Arizona and Long Island, and the potential unavailability of deponents on weekends, a 45-day schedule is very tight.

the matters originally scheduled for May 1 be extended to a date 45 days following the revised last discovery response date.

In passing upon the revisions herein requested, the Board may also want to consider a related matter. Counsel for the County on EDG matters must devote much of their time and effort currently and in the near future to matters concerning LILCO's recent motion for a low power license and the new licensing board's ruling for expedited treatment thereof. See Attachment A hereto. We trust that this Board, two members of which apparently asked to be relieved from handling the low power issues because of obligations in another case, will be sympathetic to the burden placed on counsel for Suffolk County by the current schedules in the Shoreham case.^{6/}

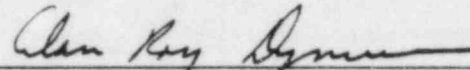
This matter is, of course, ancillary to the major facts supporting the revision of the schedule as requested -- that as of April 10, thousands of relevant documents to be produced have not been received, that their review will take a considerable time, that many more depositions than originally estimated need to be taken after document review, and that all of this information must

^{6/} LILCO also appears burdened by the confluence of several pending matters. On March 19, 1984, LILCO moved for a six-month extension of the hearing schedule in proceedings before the New York Public Service Commission, in part on the grounds of the burdens of this licensing proceeding schedule. See LILCO's PSC motion, Attachment 5 hereto, at 4-6. We are informed that LILCO's motion was denied and that the PSC hearing is scheduled to begin on May 15, 1984. Hence, this Board's revision of the litigation schedule for the EDG contentions will also allow LILCO more time to devote to the PSC hearing and the preparation therefor, and thus permit LILCO to avoid the severe prejudice of which it complained to the PSC.

be digested in order to prepare the filing originally scheduled for May 1, 1984.

Respectfully submitted,

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February 29, 1984

BY FEDERAL EXPRESS

T. S. Ellis, III, Esq.
Anthony F. Earley, Jr., Esq.
Hunton & Williams
P.O. Box 1535
707 East Main Street
Richmond, Virginia 23212

Re: Document Discovery Requests

Gentlemen:

In compliance with the Board's rulings at the February 22, 1984 conference, Suffolk County is hereby requesting the production of the documents described in Attachment A hereto.

Attachment A is intended to supersede the County's February 17 preliminary document discovery requests. Those requests, as ordered by the Board, were organized and categorized according to the various contentions and bases to which they pertained. Attachment A to this letter is similarly structured for LILCO's convenience in more easily identifying and producing the various documents requested by the County.

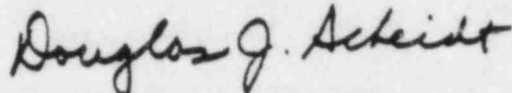
As indicated in our February 17 letter to you, the County is prepared to discuss with LILCO the documents requested in an effort, among other things, to avoid unnecessary duplication of documents which disclose the same information. In addition, permitting County counsel a reasonable opportunity to review actual files with LILCO counsel in attendance, rather than producing copies of all documents in the first instance, may be more efficient and sensible under the circumstances. We are also aware that there is a certain degree of overlap among the various document requests in Attachment A.

KIRKPATRICK, LOCKHART, HILL, CHRISTOPHER & PHILLIPS

T. S. Ellis, III, Esq.
Anthony F. Earley, Jr., Esq.
February 29, 1984
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To the extent that such repetition exists, we would be happy to discuss the requests to resolve any difficulties you may experience in responding to them.

Very truly yours,

A handwritten signature in cursive script that reads "Douglas J. Scheidt".

Douglas J. Scheidt

DJS/ss
Attachment
cc: Fabian G. Palomino, Esq.
(w/attachment)
Richard J. Goddard, Esq.
(w/attachment)

ATTACHMENT A

The County hereby requests LILCO to produce the documents listed below. This request does not cover documents previously supplied to the County by LILCO. For purposes of this request, the word "documents" is to be given its broadest meaning to include, without limitation, correspondence, memoranda, reports, notes, computer printouts and other forms of written data and material, all whether in draft or final form. Furthermore,

(i) If a document has been prepared in several copies, or additional copies have been made that are not identical (or are no longer identical by reason of any subsequent notation on or other modification of a copy), each nonidentical copy is to be construed as a separate document if the notations or other modifications thereon are significant to the substance of the document. Identical copies need not be supplied.

(ii) If any document covered by these requests is withheld under a claim of privilege, furnish a list of such document(s) with the following information: date, author, addressee or recipient, persons to whom copies were furnished, subject matter, the privilege which is claimed, and the requests which call for such document(s).

(iii) If any requested document was but is no longer in your possession or subject to your control, state what disposition was made of it.

Unless expressly limited, documents to be produced include not only those in the possession or subject to the control of LILCO, but also documents in the possession or subject to the control of LILCO's consultants, persons under contract with LILCO and vendors of equipment or services to LILCO, including without limitation Transamerica Delaval, Inc. ("TDI"), Stone & Webster Engineering Corporation ("S&W"), and Failure Analysis Associates ("FaAA").

Contention I

1. Documents identifying all TDI series R-4 and RV-4 diesel engines in nuclear and non-nuclear service, the name and address of the owner/operators of such engines, and in each case the B.M.E.P., horsepower rating, KW rating, operating speed, and fuel for such engine.
2. Documents identifying all TDI R-48 diesel engines in service at the time LILCO accepted the TDI bid for the Shoreham EDGs, the name and address of the owners/operators of such R-48 diesels, and in each case the B.M.E.P., horsepower rating, KW rating, operating speed, and fuel for such diesels.
3. Documents in the custody, control or possession of TDI, including correspondence between TDI and LILCO, that describe or address alleged defects or deficiencies with the Shoreham EDGs or their components.
4. Documents in the custody, control or possession of TDI, including correspondence between TDI and its customers, that describe or address alleged defects or deficiencies with TDI series R-4 and RV-4 diesel engines or their components.

5. Documents showing the results of failure analyses prepared by or for TDI with respect to components of TDI series R-4 and RV-4 diesel engines; documents showing the results of failure analyses with respect to components of the TDI EDGs at Shoreham.
6. Documents, including blueprints, specification sheets, operating histories, quality documentation and test records, provided by TDI to the TDI Owners' Group. See page 63 (Matthews) of the transcript of the January 26, 1984 meeting between the NRC Staff and the TDI Owners' Group.
7. Documents showing experience data in the possession, custody or control of TDI, including records of failures, operating losses and design changes, concerning TDI series R-4 and RV-4 diesel engines or their components at (a) Shoreham, (b) other nuclear plants (c) marine applications, and (d) non-nuclear installations.
8. All TDI-specific documents regarding series R diesel engines or their components constituting
 - (a) Significant Operating Experience Reports ("SOERs");

- (b) Significant Event Reports ("SERs");
- (c) Operating and Maintenance Reports ("O&MRs");
- (d) Licensee Event Reports ("LERs").

9. Blueprints, design drawings, and material and manufacturing specifications and tolerances, with surface finish details and codes if available, and all modification detail drawings, for (i) every component of the TDI EDGs at Shoreham, and (ii) every component of each model of the TDI series R diesel engines that was changed to cause, or was changed as a result of, an increase in the horsepower of such model, including:

- (a) air, oil and jacket water coolings drawings;
- (b) crankshaft drawings;
- (c) piston and liner drawings;
- (d) piston pin and bush detail drawings;
- (e) main bearing, bottom end bearing drawings and detail of bearing bolting arrangements;
- (f) bedplate and cylinder block drawings;

- (g) tie bolt drawings;
- (h) cylinder cover drawings;
- (i) turbocharger drawings;
- (j) camshaft drawings including material details and heat treatments for cams and rollers;
- (k) air start, fuel and relief valve drawings;
- (l) connecting rod drawings;
- (m) lubricating, jacket water, starting air, fuel and other system piping drawings and line diagrams;
- (n) piston cooling arrangement drawings;
- (o) jacket water cooling arrangement drawings;
- (p) camshaft drive assembly drawings;
- (q) governor and governor drive arrangement drawings;
- (r) fuel pump drawings;
- (s) drawings of all engine safety devices including overspeed trips, safety valves, bursting discs, crankcase pressure relief devices, overload protection and shutdown circuitry drawings;

(t) pressure and temperature charts of all other engine running parameters for reduced, continuous and overload conditions; and

(u) control and instrumentation drawings.

10. Drawings and documents for the components of the TDI EDCs listed in request number I.9., to the extent that they are not included in documents requested in number I.9., above, showing:

(a) all pump capacities and flow rates through engine piping systems;

(b) operational recommendations;

(c) service interval charts;

(d) instruction manuals and service manuals;

(e) overhaul and maintenance procedures;

(f) test bed results for each engine, including such results for ten percent overload conditions;

(g) detailed design calculations for each engine component, including design changes, documents showing the reasons for the engine uprating, details and drawing

of such modifications, and material selection details and specifications lists of manufacturing process and QA/QC controls involved;

- (h) design calculations for the replacement crankshaft, including crankshaft balance data;
- (i) the procurement specifications (SH1-89) for the Shoreham EDGs as issued by LILCO in December 1973, all addenda showing changes thereto, and all E&DCRs referred to therein; documents showing exceptions and clarifications made by TDI to the specification and addenda, and documents showing LILCO comments thereon; the performance specifications and documents showing the results of inspections performed upon receipt of the EDGs to ensure that the procurement specifications were met.
- (j) indicator diagrams on cylinder pressure and crank angle details over the four cycles;
- (k) balance data, including details of the balance weights, for the replacement crankshafts on the TDI EDGs at Shoreham and for the identical design crankshafts at other installations;

- (l) temperature distribution (shown by lines of constant temperature through the various parts, if available) through cylinder heads, the piston crown and upper parts of the cylinder liner (including valve seals and pockets, flame deck of cylinder head, piston crown and sides, and cylinder liner flange);
 - (m) turboblower characteristics (including the weight of gas going through the blower, surge boundaries and RPMs), valve timing diagrams covering air inlets and exhaust valves of fuel injectors, and fuel pump characteristics.
11. Documents showing the changes in each model TDI series R diesel engine that were intended to increase its per cylinder horsepower.
12. Documents showing the results of the Initial Diesel Generator Recovery Program, including
- (a) check-out and initial operation testing of individual EDG components;
 - (b) functional testing of EDG systems;

- (c) preoperational testing (including starting tests, design load and overload tests, load acceptance and rejection tests, reliability qualification tests, 72-hour endurance run, electrical tests, and 100 total hours of operation at full load);
 - (d) detailed vibration and balance tests;
 - (e) crankshaft and other components inspection following preoperational testing;
 - (f) torsional crankshaft tests.
13. Documents showing the results of the Expanded Diesel Generator Recovery Program, including
- (a) results of the seven-day continuous run;
 - (b) results of post-testing inspections.
14. Documents with respect to the Diesel Generator Recovery Program showing component selection and the bases therefor, task descriptions for quality and for design review, results of inspections of the EDGs and their components, the results of investigations of manufacturing and design processes for EDG components, and analyses of EDG components.

15. All deficiency or non-conformance reports (LDRs, CARs, etc.) concerning the EDGs or their components, and documents showing all dispositions thereof, since January 1980.
16. All documents prepared by or for TDI identifying nonconformances of the EDGs and their components affecting form, fit, or function which were dispositioned "repair" or "use-as-is," all documents which set forth the technical justification for the acceptability of such "use-as-is" or "repair" decisions.
17. All dispositions and corrective action documents, including appropriate reports to management, prepared by or for LILCO, S&W, or TDI regarding the Shoreham EDGs or their components which set forth the identification, cause or corrective action initiated for nonconformances.
18. Documents identifying and showing the results of all procurement requirements, inspections, tests and QA/QC reviews and inspections of the following replacement parts installed in the Shoreham EDGs:
 - a) Crankshafts

- b) model "AE" pistons
 - c) cylinder heads
 - d) connecting rods
 - e) connecting rod bearings
 - f) turbocharger thrust bearings
 - g) cylinder liners
19. All management reports and other documents prepared by or for LILCO, S&W, or TDI management which set forth the status and adequacy of the design and manufacture of the Shoreham EDGs.
20. Design verifications provided by the performance of design reviews, the use of alternate calculations, or the performance of qualification tests relied upon to verify the adequacy of the design and design changes of the Shoreham EDGs.
21. All documents developed by LILCO, S&W, or its subcontractors as part of the DRQR review of the design and quality attributes of the components of the Shoreham EDGs. (See "LILCO's Response to Suffolk County's Motion To Admit

Supplemental Diesel Generator Contentions," February 7 1984, at p. 10.) Included should be at least the following categories of documents:

- (a) documents regarding the review of every component of the EDGs conducted to determine its function and potential contribution to engine reliability;
- (b) documents regarding the assessment of the nuclear and non-nuclear experience with the components set forth in (a);
- (c) documents providing the basis for the selection of; 171 out of the total of 218 component types for further evaluation;
- (d) documents concerning the adequacy of each component's design and quality such as design analyses, calculations, inspections, nondestructive examinations, and other necessary, destructive examinations.

22. Documents showing the results of inspections, reports, examinations, tests and analyses of the cracking of the cylinder blocks; documents showing the inspection procedures used with respect to the cracks; documents showing the bases for the conclusion that the cracks are

non-propagating, and documents relied upon in reaching this conclusion; photographs and drawings depicting the location of the cracks; documents identifying other engines on which "these type cracks . . . had been observed." See NRC Morning Report dated February 14, 1984.

23. Documents showing the procedures used for and the results of comprehensive performance tests conducted by TDI on the Shoreham EDGs prior to their shipment to LILCO, including sequential load tests.

Contention I.A.

I.A.1 Crankshafts

1. To the extent not included in request number I.9., supra, detailed engineering drawings, including dimensions, for the original and replacement crankshafts.
2. Documents showing calculations performed for sizing the replacement crankshafts, including assumptions.
3. Documents showing calculations used for meeting DEMA, ABS, Det Norske Veritas and Lloyd's standards for the size of the crankshafts and documents concerning any meetings or

discussions with DEMA, ABS, Det Norske Veritas and Lloyd's and correspondence with the foregoing, concerning the replacement crankshafts.

4. Documents showing the results of any crankshaft failure analyses performed by TDI.
5. Documents showing the results of torsional analyses and torsional stress tests on the original and replacement crankshafts; documents showing the results of inspections, examinations and analyses of the two automatic shutdowns and one manual load reduction experienced during the torsional vibration testing. See NRC Inspection Report No. 50-322/83-38 at pages 15-17.
6. Documents showing manufacturing specifications for forging (e.g., gash or grain flow), machining and shot peening of the replacement crankshafts.
7. Documents showing testing and inspection criteria for replacement crankshaft attributes (such as dimensions, hardness and tensile strength), and the results thereof for the three replacement crankshafts.
8. With respect to Franklin Research Center's Interim Technical Evaluation Report dated 11/18/83, provide all

- (a) documents showing the detailed methods by which TDI calculated the equivalent inertia and torsional spring constant for each crank assembly in the mass-elastic model employed by TDI to represent the dynamic natural frequencies and mode shapes of the engine;
- (b) all documents showing the results of the "manufacturer's operational tests . . . performed on the engines in addition to the nuclear qualification program" (prior to delivery of the EDGs to Shoreham) which indicated that the test data confirmed "to within 1%" the critical speeds calculated during design; all documents showing that these tests confirmed the amplification factors of each significant order of vibration. Id. at 14.

- 9. With respect to FaAA's preliminary and final metallurgical evaluations of the failed crankshaft, EDG 102, all photographs reproduced in those reports and all other photographs documenting the appearance of fracture surfaces.
- 10. Documents concerning the procurement of the replacement crankshafts, including all specifications thereof.

I.A.2 Main Bearings

1. To the extent not included in request number I.9., supra, detailed drawings of the main bearing between cylinders no. 4 and 5, including both bearing and crankshaft tolerances and clearances.
2. Documents showing all analyses conducted with respect to the main bearing oil film pressure or oil film thickness on the bearing between cylinders 4 and 5.
3. Documents showing or calculating the wear anticipated on the main bearings by the replacement crankshafts.

I.A.3 Pistons

1. To the extent not included in request number I.9., supra, detailed design drawings of the model AE and AF pistons showing dimensions and tolerances.
2. To the extent not included in request number I.9., supra, detailed drawings of the model AE and AF piston crown to skirt connecting bolts (including length and diameter) and bearing surfaces.
3. Documents showing engineering analyses of forces on model AE and AF piston bolts, crowns and skirts.

4. Documents showing the operational test programs for the model AE and AF pistons and documents showing the results thereof. This shall include
- (a) documents showing the results of "experimental test programs" which reveal the patterns of stress and temperature existing in the piston assembly (including studies of thermal distortion, effects of combustion pressure and inertia forces, and the results of finite element analysis on piston crowns). See TDI Responses to NRC Staff Questions, dated 12/16/83, at page 8;
 - (b) documents showing the results of testing of the model AN and AE piston assemblies that support the results of static and analytic studies (id.);
 - (c) documents showing the operating experience of the modified model "AF" piston skirts in nuclear and non-nuclear applications (id.);
 - (d) documents showing the results of testing of the model AE and AN piston assemblies (in TDI's experimental R5-V12 engines and elsewhere) (id.);

- (e) documents showing the operating experience of the model AE pistons in nuclear and non-nuclear applications (id.);
- (f) documents and drawings showing that the modified piston skirt design improves stress distribution in the area of the fastener holes and in the circumferential mid rib blend to the wrist pin boss (id. at page 9);
- (g) documents showing that the protection afforded the fasteners against cyclic loading could be achieved with 13 belleville washers instead of the 26 original washers (id.);
- (h) documents attributing the several field failures of the model AN pistons to "high residual stresses not removed by a stress relief process" (id.);
- (i) documents showing the change made to the corebox in which the mold for the piston skirt interior is formed (id.).

5. Documents showing the results of failure analyses of the model AF and AE pistons.

6. To the extent not included in request number I.9., supra, detailed drawings of the AE and AF piston pins and their dimensions.
7. Documents showing manufacturing specifications for the model AE piston skirts, crown, bolts and pins.
8. Documents showing procedures, hold points and specifications for piston tinning (plating).
9. Documents showing piston cracking on the engines of the Star and Pride of Texas ships.
10. all drawings and photographs showing piston skirt damage. (See FaAA's Preliminary Metallurgical Analysis of Cracked Piston Skirts, 12/8/83).

I.A.4 Cylinder Heads

1. To the extent not included in request number I.9., supra, detailed engineering drawings of current production cylinder heads.
2. Documents showing engineering calculations on firedeck thickness.

3. Documents showing the results of finite element analyses performed on cylinder heads.
4. Documents showing cylinder head failures at Grand Gulf.
5. All repair records for each of the cylinder heads listed in the September 30, 1983 letter from Mr. Trussel (TDI) to J. Molina (Titan Navigation).

I.B.1 Exhaust Temperatures

1. Documents showing the manufacturer's manual or procedure(s) permitting approximately 1100°F exhaust temperatures for the Shoreham EDGs.
2. All documents showing engineering analyses that provide the basis for the approximately 1100°F exhaust temperatures for the Shoreham EDGs.

Contention II.A.

II.A.1 Connecting Rod Bearings

1. To the extent not included in request number I.9., supra, detailed engineering drawings of the original and new bearing design including dimensions.

2. Documents showing the results of engineering analyses of the bearing oil film pressure.
3. Documents showing FaAA's review of LILCO's bearing maintenance procedures.
4. Documents describing TDI's bearing material sample testing program to check chemical and physical properties against specification and the certified material test report(s) supplied by the vendor.
5. With respect to TDI's failure analysis on connecting rod bearing shells dated 10/17/83, documents showing
 - (a) thickness measurements taken by TDI at 18 locations along the edge and 4 locations near the oil groove, and drawings indicating where those measurements were taken;
 - (b) documents and drawings giving the original manufacturing tolerances for thickness of those 22 locations; and
 - (c) figures 1, 2 and 3
6. With respect to FaAA's 10/31/83 Connecting Rod Bearing Failure Investigation, all documents showing the results

of physical and metallurgical examinations of any bearings, computations of the design loads imposed on the bearings, and analyses of design features of the bearing system, including

- (a) documents showing all calculations made for determining the total range of crank pin deflection, end-to-end, at the No. 6 journal for (a) the 11" crank pin, and (b) the 12" crank pin;
- (b) documents showing the results of finite element analysis and fracture mechanics performed by FaAA to determine the quantitative influence of journal deflection of bearing stresses;
- (c) documents showing the results of scanning electron microscopic examinations and any drawings or documents indicating the locations and sizes of the voids in the cast material in the fracture plane.

7. With respect to the 12/15/83 FaAA Analysis of Replacement Connecting Rod Bearings, Fatigue Life Prediction, Shoreham Nuclear Power Station:

- (a) documents showing FaAA's finite element method stress analysis and fracture mechanics analysis of the

fatigue cracking of the original and replacement connecting rod bearings (id. at 1);

(b) documents showing the computation of the stress intensity factor range of the original and replacement connecting rod bearings (id. at 6); and

(c) documents showing the basis for the following FaAA statement:

"Some engine manufacturers successfully operate engine sleeve bearings above industry guidelines in specific applications, by exercising careful control of engine component design, manufacturing, and operating conditions. LILCO appears to be exercising the degree of control necessary for successful operation at 26,780 psi peak oil film pressure." (Id. at 1-2).

(d) documents showing that the voids in the bearing shells (i) were not atypical of cast aluminum bearings and (ii) would not be detrimental to bearing life in the absence of abnormally high stresses (id. at 3).

(e) documents showing the analysis which determined that the lack of parallelism and the voids in the bearings were not failure causes (id. at 1-2).

8. Documents showing the results of inspections, reports, tests, examinations and analyses of the connecting rod wrist pin bronze bearings on which linear indications were found, and all photographs and drawings depicting the nature and location of the linear indications. See NRC Morning Report dated February 16, 1984.

II.A.2. Water Jacket Pumps

1. With respect to the 12/15/83 memo from Cox (FaAA) to Milligan (LILCO) concerning FaAA's water jacket pump inspection, all photographs referred to therein; documents showing the three pump failures in pumps with tapered shaft/key attachment design; and documents showing the results of the disassembly of the water jacket pump from EDG 101.
2. All drawings depicting the nature and location of the scoring indications found in the jacket water pump on EDG 102; all documents describing, referring to or commenting on the scoring indications on the jacket water pump;
3. With respect to NRC Inspection Report No. 83-02,
 - (a) the memorandum (referred to on page 8 of 10 of section 7) which addressed jacket water pumps installed in EDGs furnished to, among others, LILCO;

- (b) the failure analysis referred to on page 9 of 10, id.;
 - (c) the memorandum referred to, id., that is not in agreement with the failure analysis;
 - (d) the memorandum concerning the redesign of the jacket water pump, id.;
 - (e) "Comparison of R-48 Engine Front End Amplitude of 4th Order at 450 RPM." Id. at 9 of 10.
- 4. Documents showing the torque required for removal of the impeller on EDG 101.
 - 5. Photographs, and all documents showing analyses, of the driven end gearing.
 - 6. All documents showing the effect of the location of the jacket water pump on vibration of the EDGs.

II.A.3 Rocker Arm Assembly

- 1. To the extent not included in request number I.9., supra, detailed engineering drawings of the rocker arm assembly attachment to the cylinder head and subcover.

2. Documents showing the engineering analysis of the rocker arm load transmittal to the engine structure.

II.A.4 Fuel Lines

1. Documents identifying all TDI engines in nuclear and non-nuclear applications that lacked shrouded fuel lines for the period between 1974 and 1980.

II.A.6 Electrical Cables

1. Documents identifying all engine cables used at Shoreham and documents showing certifications of compliance with IEEE standards and cable manufacturer's temperature ratings.

II.A.7 Camshaft Lobes

1. Documents describing the camshaft inspection procedure and the criteria for acceptance for further use.
2. Any and all photographs and drawings depicting the nature and location of camshaft lobe pitting on EDG 101; all documents showing the results of examinations, inspections, reports and analyses of the camshaft lobe pitting, and all documents describing, commenting on or referring to the pitting.

II.A.8 Turbocharger Thrust Bearings

1. To the extent not included in request number I.9., supra, detailed engineering drawings of the Shoreham EDG
 - (a) turbocharger thrust bearings;
 - (b) turbocharger thrust bearing prelube system; and
 - (c) turbocharger thrust bearing lubrication system.
2. Documents describing system details of the turbocharger prelubrication and lubrication systems (e.g., oil types, flow rates).
3. Documents showing the design bases for the turbocharger prelube and lubrication system.
4. All photographs and drawings depicting the nature and location of the damage to, and all documents showing the results of inspections, reports, examinations and failure analyses of, the turbocharger thrust bearings, including those that failed at Shoreham in February 1984. See NRC Morning Reports dated February 6, 10 and 14, 1984. Documents and drawings showing modifications to the failed turbocharger thrust bearings. Id.

II.A.9 Air Supply Tubing

1. Documents showing air supply tubing run evaluations (Affidavit of J.C. Kammeyer, 2/7/84, at page 4) and all documents showing engineering and design change requests that initiated all changes.
2. Documents showing criteria used in determining support points.

II.A.10 Base Plates

1. Documents showing or comparing the different dimensions of the saddles and bolt holes for EDGs 101, 102 and 103.
2. Documents showing the results of the TDI report on bearing cap stud loading.
3. Documents showing the results of analyses of the base plate cracking.
4. Documents showing the results of reports on bearing saddle indications, cracks or failures.
5. With respect to the 12/7/83 memorandum from Wells (FaAA) to Milligan/Judge concerning baseplate cracking,

- (a) documents showing the results of the journal orbit analysis conducted by TDI, the FaAA analyses of the forces on the main bearing caps, and all documents showing the calculations by FaAA that allegedly show that the frictional shear stress and normal stress in the vicinity of the stud holes are too low to cause growth of these cracks;
- (b) documents showing crack indications in EDG 102 or 103 bases, and documents showing calculations demonstrating that the side loads developed between the studs and the 1-1/8" wall adjacent to the bearing saddle are more than sufficient to fracture this wall; and
- (c) documents showing U.S. Coast Guard data^{on} other non-counter weighted DSR-48 engines that have base plate cracks.

II.A.11 Turbocharger Bolts

1. Documents, including LDR 1629, showing deficiencies, defects, nonconformances and other problems with Shoreham turbocharger bolts, and the dispositions thereof.

II.A.12 Cylinder Liners

1. Photographs and drawings depicting the nature and location of pitting and cracking in cylinder liners on the Shoreham EDGs; documents showing the results of inspections, tests, examinations, reports and analyses of such pitting and cracking, and documents describing, commenting on or referring to the pitting and cracking.
2. Documents showing analyses of other cylinder liner failures in TDI series R-4 and RV-4 engines.
3. Documents showing any analyses of faulty injector tips ; with respect to cylinder problems.

II.A.13 Design Modifications

1. Documents showing TDI diesel product improvements, design modifications or other changes to the Shoreham EDGs that affect fit, form or function (since the EDGs were released), documents showing LILCO's comments on such improvements, and documents showing TDI's bases for the recommended changes.
2. Detailed design drawings of the current governor linkage at Shoreham and documents showing the change request for its installation.

3. Documents showing the engineering analyses for the change to VITON "O" rings, the fuel oil header ejector system addition, the turbocharger bracket change, the head stud replacement, the tapered fit drive gear hub and impellor modification, and the control system improvements for high temperature main bearing shutdowns and vibration shutdowns.

CONTENTION II.B

II.B.3 Connecting Push Rod Weld

1. Documents showing analyses of the Shoreham push rod design and manufacture.
2. Documents showing the results of failure analyses of connecting push rods at Shoreham.
3. Documents showing the specifications for the original and replacement connecting push rods, and documents showing engineering analyses of material used for the specifications.

II.B.5. Air Start Valves

1. Documents showing the results of failure analyses of air start valves.

II.B.6. Non-Class 1E Control Power and Components.

1. Documents showing the specifications for control devices and control components at Shoreham.
2. Documents showing the results of failure analyses performed by or for TDI or Cleveland Electric Illuminating Co.
3. Documents showing the design interface between TDI and LILCO for control power and components.

II.B.7. Crankcase Capscrews

1. Documents showing the results of failure analyses performed on crankcase capscrews at Grand Gulf.
2. Documents describing the operating conditions at Grand Gulf at the time of the failure of the crankcase capscrews.
3. Documents showing the specification for torquing of the capscrews and documents showing whether the specification was met.

II.B.8. Fuel Oil Line.

1. Documents showing analyses of the adequacy of the supports of the fuel lines at Shoreham.
2. Documents showing the results of failure analyses prepared by or for MP&L or TDI on the failure of the main fuel oil line at Grand Gulf.
3. Documents showing the operating conditions at Grand Gulf at the time of the failure of the fuel oil line.
4. Documents showing the engineering change and redesign of the fuel oil line.

II.B.9. Sensing Line.

1. Design drawings of the starting air system and piping at Shoreham.
2. Documents showing the results of failure analyses conducted by or for MP&L or TDI.
3. Documents showing the seismic design criteria for the diesel starting air system at Shoreham.

I.B.11. Link Rod Assembly.

1. Documents showing the results of failure analyses on the link rod assembly.
2. Design drawings of the original and revised link rod assembly.

II.B.12. Governor Flexible Drive Coupling.

1. Documents showing the results of failure analyses for the governor flexible drive couplings prepared by or for Duke Power or TDI.
2. Design drawings of the Shoreham drive coupling.
3. Documents identifying the manufacturer(s) of the Shoreham and Catawba governors.

II.B.13. Rotor and Stator.

1. Manufacturing drawings for the Shearon Harris generator.
2. Documents, including correspondence, showing the results of inspections, examinations, tests, reports and analyses of the Shearon Harris rotor, stator and AC box.
3. Documents showing the results of failure analyses performed on the generator by or for Carolina Power or TDI.

II.B.14. Air Check Valves.

1. Documents showing the results of failure analyses of the air check valves.
2. Documents identifying the locations where the check valves were used.
3. Design drawings of the failed and redesigned valves.

II.B.15. Pneumatic Logic

1. Documents showing the differences in pneumatic logic between Grand Gulf and Shoreham.
2. Documents showing the results of failure analyses performed by or for Grand Gulf and TDI.

II.B.16. Relay Tachometer.

1. Documents showing the specification used for the Shoreham relay tachometer.
2. Documents showing the results of the failure analyses performed on the tachometer for or by Grand Gulf or TDI.
3. Documents showing the manufacturing specification for the Grand Gulf relay tachometer.

CONTENTION III

1. All inspection and test records for the Shoreham EDGs prepared by or for TDI, including copies of the Manufacturing Engineering Route Sheet or other shop traveler, which verify that the EDGs and their components were manufactured to specified requirements and which demonstrate that those items will perform satisfactorily in service.

CONTENTION III.A

III.A.1 Cylinder Heads

1. Documents showing temperature control procedures implemented for melting during cylinder head casting, including holding times.
2. Documents showing steps taken to ensure cleanliness of the cylinder head metal.
3. Documents showing how and where samples of the metal are taken from the cylinder head pour for chemical analysis.
4. Documents showing procedures used to clean the cylinder head mold including grinding allowances and how dimensions are determined.

5. Documents showing cylinder head casting inspection procedures, including where inspection stations are located; documents showing inspection criteria and inspection equipment for castings.
6. Documents showing the rework request procedure.
7. Documents showing the cylinder head molding procedures, such as preheating and pouring rate procedures, including calculated time for cooling and time until shakeout. Also documents showing the types of sands and stabilizers used, mold support placement, and analysis of the adequacy of the gating, risers, sprue and chills,
8. All manufacturing process documents prepared by or for TDI since 1980 regarding changes to the foundry practices for casting the cylinder heads including documents setting forth the eleven changes in technique made in 1981, the seven changes in 1982, the two changes made prior to June 1983, and any changes made since that time; all documents maintained by the foundry such as complete records of the examination results and the monthly review of repair experiences. (See Letter NSC-83-273, A. W. Zeuthen to M. H. Milligan.)

9. Documents showing LILCO's inspection and audit of TDI's manufacturing process for the cylinder heads, including the "Objective Evidence" referred to in the "Comments" section of the Audit Evaluation Forms for the audits of TDI on October 28-30, 1975, February 23, 1976, and June 18, 1976.

III.A.2 Connecting Rod Bearings

1. Documents showing manufacturing procedures for the bearings, including steps involved in manufacturing of the aluminum-top layer, the barrier layer, and the electro-plated babbitt layer.
2. Documents describing the cause(s) of porosity in the bearings.
3. Documents showing the effect of porosity on the plating of the babbitt.
4. Documents showing manufacturing procedures used to guard against various types of porosity occurrences.

III.A.3 Pistons

1. Documents showing manufacturing procedures for the model AE and AF pistons.

2. Documents showing temperature control methods implemented throughout the manufacturing process.
3. Documents showing piston manufacturing inspection criteria procedures.

III.A.4 Fuel Line

1. Documents showing inspection procedures and criteria relative to the high-pressure fuel lines.

III.A.5 Generator Rotor

1. With respect to the Parsons Peebles Failure Analysis Report-EF-3060
 - (a) documents from Parsons Peebles-Electric Products, Inc., referred to in the 11/2/83 telephone memorandum (Kammeyer, SWEC, and Silverberg, Parsons Peebles) supplementing the failure analysis;
 - (b) documents showing action taken by Stone & Webster in response to the above-mentioned failure analysis;
 - (c) documents showing the damage to or repair of the generator rotor.

2. With respect to the 10/28/83 Woodward Governor failure analysis,

- (a) documents showing the results of metallurgical examinations undertaken;
- (b) documents and data showing the tests performed by Woodward Governor;
- (c) documents and data supporting the conclusion of the metallurgist that "the failure was a typical brittle fracture caused by excessive torsional impact loading in the acceleration mode, and [that] it occurred at the weakest section."

III.A.6 Cylinder Liners

- 1. Documents showing manufacturing procedures for the cylinder liners.
- 2. Documents showing inspection procedures and criteria for the cylinder liners.
- 3. Documents, including LDR 1642, showing deficiencies and nonconformances and other manufacturing problems with Shoreham cylinder liners, and the dispositions thereof.

4. Documents showing analyses conducted on cylinder liner pitting, including how it could affect engine operation.

III.A.7 Cylinder Head Subcover Assembly

1. Documents, including LDR 1541, showing deficiencies and nonconformances and other manufacturing problems with Shoreham cylinder heads subcover assemblies; and dispositions thereof.
2. Photographs and documents showing the location and nature of the cracking and documents showing the results of inspections, examinations, tests, reports and analyses of the cracking; documents showing engineering analyses and bases for the determination that the cracking would have no impact on engine operation.

III.A.8 Cylinder Head Nuts

1. Documents showing manufacturing inspection procedures and criteria for the cylinder head nuts.
2. Documents showing the results of the FaAA analysis which determined that the cylinder head nuts were acceptable for operation.

III.A.10 Camshaft Lobes

1. Documents showing manufacturing procedures for the camshaft lobes.
2. Documents showing the heat treatment method implemented during manufacture of the lobes.

III.A.11 Fuel Injectors

1. Documents, including LDR 1639, showing deficiencies, nonconformances and other manufacturing problems with Shoreham fuel injectors, and dispositions thereof.
2. Documents showing inspection procedures and criteria for the injectors.
3. Documents showing the results of inspections of the damage to cylinder liners due to faulty injector tips.

CONTENTION III.B.

III.B.1 Piston Skirts

1. Documents showing the different heat treatment methods for the model AN, AF and AE pistons.

KIRKPATRICK, LOCKHART, HILL, CHRISTOPHER & PHILLIPS

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Re: Document Discovery Requests

Gentlemen:

In compliance with the Board's rulings at the February 22, 1984 conference, Suffolk County is hereby requesting the production of the documents described in Attachment A hereto.

Attachment A is a partial listing of documents requested by the County. As you know, the County was not permitted to inspect TDI's files until March 22. On March 22 and 23 the County inspected TDI's files in Oakland and identified thousands of relevant documents to be produced but, other than a few documents that TDI photocopied and produced on March 23, the County has received no documents from TDI.

In addition, LILCO has produced only some of the documents requested by the County. For example, LILCO has not produced any documents in response to the County's Document Discovery Request Nos. I.8., I.10.(i), I.20, I.22, I.A.1.6., I.A.1.10., I.A.2. and 3., I.A.3.4(a), I.A.4.3, II.A.1.2. and 3., II.A.2.3, II.A.2.5. and 6., II.A.7.1. and 2., II.A.8.1., 2., and 3., II.A.10.1., II.A.10.5, II.2.3.1. and 2., II.B.8., II.B.9.3., II.B.12.3., and III.A.5.(b) and (c). LILCO has only partially responded to Request Nos. I.12.(c), (d), (e), and (f), I.13.(a) and (b), I.14, I.18, I.19, I.20, I.21(a), (b) and (d), I.A.1.2., I.A.1.3., I.A.1.5, II.A.1.7.(a) and (b), II.A.1.8, II.A.10.2., 3., and 4., II.A.11.1., and II.B.5. Furthermore, LILCO has not responded to the County's Request No. 1.6. for documents provided by TDI to the TDI Owner's Group. Counsel for TDI has informed the County that he does not know which documents were provided to the Owners' Group by TDI.

March 30, 1984

Page Two

After the County receives the documents it requested in its February 29, 1984 Document Discovery Requests and has had sufficient time to review those documents, the County will seek further document discovery, if necessary.

Very truly yours,

Douglas J. Scheidt

DJS:ph

Attachment

cc: Fabian G. Palomino, Esq. (w/attachment)
Richard J. Goddard, Esq. (w/attachment)
Robert E. Smith, Esq. (w/attachment)

ATTACHMENT A

The County hereby requests LILCO to produce the documents listed below. This request does not cover documents previously supplied to the County by LILCO. For purposes of this request, the word "documents" is to be given its broadest meaning to include, without limitation, correspondence, memoranda, reports, notes, computer printouts and other forms of written data and material. Furthermore,

(i) If any document covered by these requests is withheld under a claim of privilege, furnish a list of such document(s) with the following information: date, author, addressee or recipient, persons to whom copies were furnished, subject matter, the privilege which is claimed, and the requests which call for such document(s).

(ii) If any requested document was but is no longer in your possession or subject to your control, state what disposition was made of it.

Unless expressly limited, documents to be produced include not only those in the possession or subject to the control of LILCO, but also documents in the possession or subject to the control of LILCO's consultants, persons under contract with LILCO and vendors of equipment or services to LILCO, including without limitation Transamerica Delaval, Inc. ("TDI"), Stone & Webster Engineering Corporation ("S&W"), and Failure Analysis Associates ("FaAA").

I. Copies of the references cited in the FaAA reports concerning the Shoreham EDGs or their components, including the following references cited in

A. "Investigation of Types AF and AE Piston Skirts," dated 2/27/84:

1. R.C. Dove and P.H. Adams, Experimental Stress Analysis and Motion Measurement, Charles E. Merrill Books, Inc., Columbus, Ohio, 1964.
2. Iron Castings Handbook, edited by C.F. Walton and T.J. Opar, Iron Casting Society, Inc., 1981.
3. R. Reipert, H. Moebus, and K. Schellmann, "Computer Design of a Steel-Nodular Cast Iron Piston Capable of Withstanding High Loads for Application in Medium Speed Diesel Engines," Paper No. 83-DGEP-8, American Society of Mechanical Engineers, New York, 1983.
4. H.O. Fuchs, "A Set of Fatigue Failure Criteria," Journal of Basic Engineering, pages 333-343, June 1965.
5. H.O. Fuchs and R.S. Stephens, Metal Fatigue in Engineering, John-Wiley and Sons, Inc., New York, 1980.

6. D. Broek, Elementary Engineering Fracture Mechanics, Sijthoff and Noordhoff, Alphen aan den Rijn, Netherlands, 1978.
7. R.K. Nanstad, F.J. Worzalz, and C.R. Loper, Jr., "Static and Dynamic Fracture Toughness of Ductile Cast Iron," AFS Transactions, Proceedings of 79th Annual Meeting, Vol. 83, pages 245-256, 1975.
8. B. Ostensson, "Fracture Toughness and Fatigue Crack Growth in Nodular Cast Iron," Scandinavian Journal of Metallurgy 2, Vol. 2, No. 4, pages 194-196, 1973.
9. D.G. Smith, and K.P. Jen, "Fracture Properties of Nodular Iron Castings, Grade 80-55-06," Tennessee Technological University Department of Civil Engineering Report TTU-CE-82-1, Cookeville, Tennessee, October 1982.
10. M. Castagna, P. Ferrero, R. Medana, and E. Natalu, "Fatigue Properties of 'In-Mold' Ductile Iron," AFS International Cast Metals Journal, Vol. 4, No. 4, pages 63-72, December 1979.
11. M.S. Starkey and P.E. Irving, "A Comparison of the Fatigue Properties of Machined and As-Cast Surfaces

of SG Iron," International Journal of Fatigue, page 129-136, July 1982.

12. S.T. Rolfe and J.M. Barson, Fracture and Fatigue Control in Structures, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1977.
13. P.M. Besuner, et al., "BIGIF - Fracture Mechanics Code," EPRI Report NP-1830-CCM, Electric Power Research Institute, Palo Alto, California, 1981.
14. A. Yuen, S.W. Hopkins, G.R. Leverant, and C.A. Rau, "Calculations Between Fracture Surface Appearance and Fracture Mechanics Parameters for Stage II Fatigue Crack Propagation in Ti-6Al-4V," Metallurgical Transactions, Vol. 5, pages 1833-1842, August 1974.
15. P.M. Besuner, and S.A. Rau, "Stress and Subcritical Crack Growth Analysis Under Contained Plastic Conditions," EPRI Report NP-81-8-LD, Electric Power Research Institute, Palo Alto, California, 1981.
16. H. Neuber, "Theory of Stress Concentration for Shear Strained Prismatical Bodies with Arbitrary Nonlinear Stress-Strain Law," Journal of Applied Mechanics, pages 544-550. December 1961.8.

B. "Design Review of Connecting Rod Bearing Shells for Transamerica Delaval Enterprise Engines," dated 3/12/84, and "Analysis of Replacement Connecting Rod Bearings for Emergency Diesel Generators, Fatigue Life Prediction, Shorehan Nuclear Power Station," dated 12/15/83:

1. Aluminum Company of America, Alcoa Aluminum Design Data, Pittsburgh, Pennsylvania, 1977.
2. R. Ewing (Manager of Engineering, Heavy Bearings, Imperial Clevite Inc., Engine Parts Division), private communication with L.A. Swanger (FaAA), November 2, 1983.
3. C. Matthews and G. King (Transamerica Delaval, Inc., Engine and Compressor Division), private communication with L.A. Swanger (FaAA), October 4, 1983.
4. ASTM Standard B-557, "Tension Testing Wrought and Cast Aluminum and Magnesium Alloy Products," ASTM, 1981.
5. Ross, J.M. and R.R. Slaymaker, "Journal Center Orbits in Piston Engine Bearings," SAE Paper 690114, Society of Automotive Engineers, Warrendale, Pennsylvania, 1969.

6. Hollander, M and K.A. Bryda, "Interpretation of Engine Bearing Performance by Journal Orbit Analysis," SAE Paper 830062, Society of Automotive Engineers, Warrendale, Pennsylvania, 1983.
7. W.A. Yahraus (Manager of Product Analysis, Imperial Clevite Inc., Engine Parts Division), private communication with L.A. Swanger (FaAA), October 4, 1983.
8. Journal Orbital analyses of TDI Enterprise R-48 Diesel Engine performed by Imperial Clevite Inc. for FaAA, October 6, 1983.
9. H.O. Fuchs and R.I. Stephens, Metal Fatigue in Engineering, John Wiley & Sons, New York, 1980.
10. Besuner, P.M., S.S. Rau, C.S. Davis, G.W. Rogers, J.L. Grover and D.C. Peters, "BIGIF: Fracture Mechanics Code for Structures," (Manuals 1, 2, and 3) EPRI Technical Report NP-1830, Failure Analysis Associates Report, April 1981.

C. "Emergency Diesel Generator Crankshaft Failure Investigation, Shoreham Nuclear Power Station," dated 10/31/83:

1. Thomson, William T., Theory of Vibration with Applications, 2nd ed., Prentice-Hall, 1981.
2. Hartog, Den, Mechanical Vibrations, 3rd ed., McGraw-Hill, 1947.
3. Yang, Roland, Torsional and Lateral Critical Speed Analysis: Engine Numbers 74010/12 Delaval-Enterprise Engine Model DSR-48 3500 KW/4889 BHP at 450 RMP, Transamerica Delaval Inc., Engine and Compressor Division, Oakland, California, August 1, 1974, revised May 1, 1975.
4. Yang, Roland, Torsiograph and Shaft Amplitude Tests: Stone and Webster Engineering Corporation for Long Island Lighting Company Delaval-Enterprise Engine Model DSR-48 Serial No. 74010, January 5, 1976.
5. Porter, Frederic P., Harmonic Coefficients of Engine Torque Curves. Journal of Applied Mechanics, March 1943.
6. Craig, Roy R., Jr., Structural Dynamics: An Introduction to Computer Methods, Wiley, 1981.

7. Standard Practices for Low and Medium Speed Stationary Diesel and Gas Engines, Diesel Engine Manufacturers Association, 6th ed., 1972.
8. Yang, Roland, Proposed Torsional and Lateral Critical Speed Analysis: Engine Numness 74010/12 Delaval-Enterprise Engine Model DSR-48 3500 KW/4889 BHP at 450 RPM, Transamerica Delaval Inc., Engine and Compressor Division, Oakland, California, August 22, 1983.
9. Long Island Lighting Company, Diesel Generator Sets, Purchase Spec., Shl-89, Rev. 2, January 26, 1983.
10. Timoshenko, S., D.H. Young, and W. Weaver, Jr., Vibration Problems in Engineering, 4th ed., Wiley, 1974.
11. Lloyd's Register of Shipping, Guidance Notes on Torsional Vibration Characteristics of Main and Auxiliary Oil Engines.
12. Bridge, Thomas M., Field Torsiograph Test Report for Long Island Lighting Company Enterprise Engine Model DSR-48, Serial Number 74010, LILCO DG-101, Transamerica Delaval Inc., Engine and Compressor Division, Oakland, California, October 5, 1983.

D. "Failure Analysis of Fractured Rocker Arm Hold Down Capscrew TDI Enterprise Emergency Generators," dated 2/27/84:

1. IITRI FRACTURE HANDBOOK, Edited by S. Bhattacharyya, F.E. Johnson, S. Agarwal, and M.A.H. Howes.
2. Failure Analysis of Metallic Materials by Scanning Electron Microscopy, IIT Research Institute, Chicago, Illinois, January 1979.

II. Copies of the references cited in Stone & Webster reports and analyses concerning the components of the Shoreham EDGs, including the following references cited in:

A. "Emergency Diesel Generator Rocker Arm Capscrew Stress Analysis, March 1984":

1. SWEC Calculation 11600.60-245.1-M2.
2. Mechanical Engineering Design, J.E. Shigley, 3rd edition.
3. Engineering Properties of Steel, ASM 1982.
4. Simple Diagrams Aid in Analyzing Forces in Bolted Joints, Assembly Engineering, G. Meyer 1972.

III. Documents showing the results of photoelastic analyses performed on the original and replacement connecting rods on the Shoreham EDGs.

IV. Documents showing the results of stress analyses performed to verify the change in design form the original to the replacement connecting rods on the Shoreham EDGs.

V. Documents showing the results of analyses performed on the effect of thermal stress or distortion of the piston crown and wrist pin on the TDI type AE and AF pistons.

VI. Documents showing the results of x-ray inspections of connecting rod bearings (see NRC Morning Report dated March 16, 1984).

VII. Documents and drawings showing the modifications made to the Shoreham turbochargers as a result of the turbocharger thrust bearing failures in February 1984. See NRC Morning Reports dated February 6, 10, and 14.

VIII. Documents showing the results of inspections, reports, examinations and failure analyses of:

A. the exhaust pipe that cracked on EDG 101 (see Morning Reports dated February 28-29 and March 1, 1984) and any other

exhaust pipe that cracked or had linear indications on TDI series R-4 diesel engines;

B. the connecting rod wrist pin bronze bearing on EDG 102 that had linear indications (see NRC Morning Report dated February 16, 1984) and any other such bearing that had linear indications, cracks or failures on TDI series R-4 diesel engines;

C. the exhaust manifold support that broke on EDG 101 (see NRC Morning Report dated March 5, 1984); and any other such bolt that broke, cracked, had linear indications or failed on TDI series R-4 diesel engines;

D. the jacket water pump from which the impeller came loose from the shaft (see NRC Morning Reports dated March 6, 7, 8, and 9);

E. the connecting rod wrist pin bushings that cracked on EDG 103 (see NRC Morning Report dated March 13, 1984) and any other such bushings that cracked, had linear indications or failed on TDI series R-4 diesel engines;

F. the failure of EDG 103 to reach power levels beyond 3890 KW (see NRC Morning Reports dated March 5-9, 1984).

IX. Sales literature for the TDI series R-4 diesel engine.

X. Minutes, notes and other documents reflecting meetings or discussions with DEMA, ABS, Det Norske Veritas, Nippon Kaiji Kyokai and Lloyd's, and correspondence with the foregoing, concerning the TDI series R-4 diesel engine or its components.

XI. Current organizational charts for the TDI Engine and Compressor Division.

XII. Photographs of all defects and deficiencies in the components of the Shoreham EDGs since August 12, 1983, and photographs of the failed cylinder heads that were replaced immediately prior to the August 12 crankshaft failure at Shoreham.

XIII. Documents showing the results of inspections, reports, examinations and failures analyses of, Elliott turbochargers on the Shoreham EDGs and on other TDI series R-4 or RV-4 diesel engines with the same design turbocharger.

XIV. Documents showing the results of inspections, reports, examinations and failure analyses of, exhaust valves on the Shoreham EDGs and on other TDI series R-4 or RV-4 diesel engines with the same design valve.

XV. Documents showing the spring rate for exhaust valve springs on the Shoreham EDGs, and documents showing the amount of compression per inch and the amount of compression on the spring when held in place on the valve for the Shoreham EDGs.

XVI. Documents showing the cetane number or cetane index for the type of fuel used for the test bed engine characteristics data for the Shoreham EDGs.

XVII. Documents showing installation procedures for the Shoreham EDGs and their components.

XVIII. To the extent not previously requested by the County, documents showing

- A. valve timing data for inlet and exhaust valves on the Shoreham EDGs,
- B. fuel injection timing data for the Shoreham EDGs,
- C. visicorder continuous plots of cylinder pressure against time/angle (showing four pressure waves) at 75%, 100% and 110% loads for the TDI series R-48 and R-46 diesel engines.
- D. fuel pump characteristics and fuel consumption data for the Shoreham EDGs,

- E. engine characteristics curves based on test bed data for the Shoreham EDGs, and
- F. P/V diagrams for the Shoreham EDGs.

XIX. Documents showing

- A. Nippon Kaiji Kyokai Rule "Rules and Detailed Rules for Diesel Engine Crankshafts and Those Explanations,"
- B. IACS Draft "Rules for the Calculation of Crankshafts for Diesel Engines, (edited version and unedited version), and
- C. Cimac Proposal "Rules on Calculation of Crankshafts for Diesel Engines (4. Draft).

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April 9, 1984

Robert E. Smith, Esq.
David Ross, Esq.
Guggenheimer & Untermeyer
80 Pine Street
New York, New York 10005

Re: EDG Discovery

Gentlemen:

During the County's visit to TDI in Oakland on March 22 and 23, we identified thousands of documents relevant to the TDI diesel contentions to be produced, including all of the TDI files relating to Shoreham. You indicated that after the documents were photocopied they would be sent to your offices in New York for your review and then delivered to us in Washington. We are dismayed that we have not yet received copies of any of those documents.

Among the documents to be produced, we specifically requested copies of the following:

1. Nippon Kaiji Kyokai Rule "Rules and Detailed Rules for Diesel Engine Crankshafts and those Explanations;
2. IACS Draft "Rules for the Calculation of Crankshafts for Diesel Engines (edited and unedited versions);
3. CIMAC Proposal "Rules on Calculation of Crankshafts for Diesel Engines (4. Draft);
4. Visicorder continuous plots of cylinder pressure against time/crank angle (showing four pressure waves) at 75%, 100% and 110% loads for the TDI series R-48 diesel engines;
5. Legible full-scale blueprint drawings for the following EDG components to replace the illegible reduction copies previously supplied:

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Line Item No.	Description	I.D. #	Rev. No.
346	Guide, Exhaust Valve	03-360-02-0F	L
160	Shell, Crankshaft		
	Bearing-Inter.	03-310-03-OH	E
203	Connecting Rod Assembly	03-340-5718	A
204	Rod, Detail	03-340-05-AA	G
206	Bolt, Connecting Rod	03-340-05-AC	-
209	Shell, Bearing	03-340-05-AE	E
214	Crown	03-340-04-AE	R
215	Stud, Piston	03-341-04-AB	-
221	Skirt	03-341-04-AE	E

We also requested blueprint drawings for the 8 cylinder crankshafts with 12-inch and with 11-inch crankpins, for the connecting rods with 12-inch and with 11-inch crankpins, and for the AE, AF and AN pistons. Prior to our visit we had specifically requested drawings of the new crankshaft and the AE piston but they have not been provided. In addition, we believe that the drawing we received of the rocker arm hold down bolt may not be the most recent drawing. Please confirm whether the drawing we received is the current one.

Our review of the TDI files made available to us showed that such files did not include all documents that the County had requested. To the best of our knowledge, the following categories of documents were not in those files:

1. Turbocharger drawings. See Suffolk County Discovery Request I.9(i).
2. Documents "describing system details of the turbocharger prelubrication systems (e.g., oil types, flow rates)." See Suffolk County Discovery Request No. II.A.8.2.
3. Documents "showing the design bases for the turbocharger prelube and lubrication system." See Suffolk County Discovery Request No. II.A.8.3.
4. Documents showing "temperature distribution . . . through cylinder heads, the piston crown and upper parts of the

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cylinder liner . . ." See Suffolk County Discovery Request No. I.10.1.

5. Documents "showing the results of the TDI report on bearing cap stud loading." See Suffolk County Discovery Request No. II.A.10.2.

6. Documents "showing any analyses of faulty injector tips with respect to cylinder problems." See Suffolk County Discovery Request No. II.A.12.3.

7. Documents showing the weight of the components of the TDI R-48 diesel engine, including the weight of the crankshaft, connecting rod, AF and AE pistons, wrist pin, connecting rod bolts, piston and rings, skirts and retaining bolts. See Suffolk County Discovery Request No. I.9.

8. Documents "showing the engineering analyses for the change to VITON "O" rings, the fuel header ejector system addition, the turbocharger bracket change, the tapered fit drive gear hub and impeller modification, and the control system improvements for high temperature main bearing shutdowns and vibration shutdowns." See Suffolk County Discovery Request No. II.A.13.3.

9. Documents "showing engineering analyses of material used for the [original and replacement connecting push rods] specifications." See Suffolk County Discovery Request No. II.B.3.3.

10. Documents "showing the results of failure analyses of air start valves." See Suffolk County Discovery Request No. II.B.5.1.

11. Documents showing "balance data, including details of the balance weights for the replacement crankshafts on the TDI EDGs at Shoreham." See Suffolk County Discovery Request Nos. I.10(h) and (k).

12. Documents "showing the results of failure analyses on the link rod assembly." See Suffolk County Discovery Request No. II.B.11.1.

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13. Documents showing design data and calculations for the replacement crankshafts. See, e.g., Suffolk County Discovery Request Nos. I.A.1.2, I.A.1.3.

14. The "repair records for each of the cylinder heads listed in the September 30, 1983 letter from Mr. Trussell (TDI) to J. Molina (Titan Navigation)." See Suffolk County Discovery Request No. I.A.4.5.

15. Material, heat treatment, and material inspection details and specifications for the Shoreham EDG components. See, e.g., Suffolk County Discovery Request Nos. I.9, I.10, III.A.1.

16. Manufacturing-related documents in response to Suffolk County's Discovery Requests Nos. III.A.1.1., III.A.1.2., II.A.1.3., III, A.1.4., III.A.1.5., III.A.1.6., III.A.1.7., III.A.1.8., III.A.2.1., III.A.2.2., III.A.2.3., III.A.2.4., III.A.3.1., III.A.3.2., III.A.6.1., III.A.6.2., III.A.8.1., III.A.10.1., III.A.10.2., and III.B.1.1. With respect to cylinder heads in particular, no documents were provided showing the results of pressure test reports (by hydraulic or other means) through the manufacturing process, all casting flaws detected thereby, remedies adopted, and TDI's standard acceptance criteria.

In addition, the files inspected by the County did not normally contain up-to-date information. For example, the engineering and design calculation books did not contain any information since 1980. Other files, such as for customer service reports, frequently contained no information after January 1984. Please explain this discrepancy. Documents which exist but had not been placed in files prior to our visit are, of course, covered by our discovery requests.

Please supply us with copies of the documents we have requested as soon as possible. Because the County has not yet received copies of the documents identified in Oakland, it is difficult to ascertain what additional documents have not been produced by TDI. When the County actually receives copies of the documents we identified, we will notify you of any other categories of documents not produced.


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In response to the County's request that TDI produce copies of design drawings showing previous designs of various EDG components, David Ross indicated that TDI personnel had informed him that TDI had disposed of and was not obligated to retain such drawings. Please confirm in writing whether TDI has in fact disposed of design drawings of previous designs of the EDG components and that TDI does not have copies (in paper, microfilm, or other form) in its possession or under its control. As you know, in our discovery request the term "documents" is broadly defined.

You also gave no indication as to whether TDI was withholding any document under a claim of privilege. If any document covered by any of the County's discovery requests is withheld by TDI under a claim of privilege, please furnish a list of such document(s) and identify the document's date, author, addressee or recipient, persons to whom copies were furnished, subject matter, the privilege which is claimed, and the requests which call for such document(s).

Finally, you earlier told Alan Dynner that TDI has no record of the documents it has supplied to the TDI Owners' Group, and that such documents should be obtained from LILCO. Our discovery requests were made to LILCO or through them. Although we are communicating directly with you to save time, LILCO remains responsible under the order of the Licensing Board for all discovery requests for documents in the possession or under the control of LILCO, its contractors (including TDI) and consultants.

Very truly yours,


Douglas J. Scheidt

cc: Anthony F. Earley, Jr., Esq.
Fabian G. Palomino, Esq.
Richard J. Goddard, Esq.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges
Marshall E. Miller, Chairman
Glenn O. Bright
Elizabeth B. Johnson

In the Matter of
LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Generating Plant,
Unit 1)

Docket No. 50-322-OL-4
(Low Power)

April 6, 1984

MEMORANDUM AND ORDER SCHEDULING HEARING ON LILCO'S
SUPPLEMENTAL MOTION FOR LOW-POWER OPERATING LICENSE

On March 20, 1984, LILCO filed its Supplemental Motion for Low Power Operating License. Suffolk County responded with its preliminary views on scheduling in this matter on March 26, and submitted a supplement to those views on March 30. The State of New York and the NRC Staff filed their responses to the LILCO Motion on March 28 and 30, respectively.

On March 30, 1984, via telephonic notice to the parties confirmed by a written Order of the same date, we scheduled a conference of counsel for the purpose of hearing oral arguments of the parties on "the issues that had been raised by the parties in their filings, as well as a schedule for their expedited consideration and determination." (Order

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at 1) New York State then filed a Motion, dated April 3, in which it asked that the provision in our March 30 Order mandating "expedited consideration and determination" of the issues in the LILCO Motion be deleted as lacking in any valid basis.

The conference of counsel was held on April 4, 1984, in the NRC Hearing Room at Bethesda, Maryland. Attorneys attending the conference were:

W. Taylor Reveley, III; Anthony F. Earley and
Robert M. Rolfe for LILCO

Alan R. Dynner, Herbert H. Brown and
Lawrence Coe Lanpher for Suffolk County

Fabian Palomino for New York State

Edwin Reis and Robert Perlis for NRC Staff

LILCO's Motion asks us to grant a low-power operating license to its Shoreham Nuclear Power Station, pursuant to 10 CFR §50.57(c). It characterizes the present motion as "Supplemental" to the earlier motion for a low-power license which it had filed on June 8, 1983. In ruling on that motion, the Licensing Board indicated that it had resolved all contentions relevant to issuance of a low-power license for Shoreham in LILCO's favor except for certain recently-admitted contentions regarding reliability of diesel generators at the site. ("TDI's" or "TDI diesels", so called because of the manufacturer's name, Transamerica Delaval, Inc.). No low-power license could be issued, that Board said, "until such time as that portion of Suffolk County's recently admitted emergency diesel generator contention may be resolved in LILCO's favor,

at least insofar as necessary to support a finding of reasonable assurance that Shoreham can be operated at levels up to five percent of rated power without endangering the health and safety of the public." Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), LBP-83-57, 18 NRC 445, 634 (1983). LILCO's Motion of March 20, 1984, purports to show that the pending diesel issues related to high-power operations need not be resolved prior to the granting of a low-power license for Shoreham.

At the conference of counsel, counsel for LILCO indicated that the TDIs are assumed not to operate in the accident analyses LILCO offers in support of its motion (Tr. 20). Therefore, LILCO's counsel agreed with the Board that no discussion of the TDI's possible or potential use in an emergency would be relevant.

LILCO frames the issues to be heard regarding its motion as one major issue with three factors thereunder.

- Issue: Whether emergency power sources available are sufficient to ensure public health and safety during low-power testing
- one 20 megawatt gas turbine (deadline blackstart)
 - four mobile diesel engines (deadline blackstart)

-- calculations regarding the amount of time available to react to certain events.¹

Suffolk County argued against the LILCO motion. The County quoted the "law of the case" -- specifically the statement made on the record (Tr. 21,631) by the original Licensing Board in this matter that the usefulness or effectiveness of the TDI's is uncertain. The County pointed out that there is no qualified onsite AC power system at Shoreham, and that General Design Criterion (GDC) 17 specifically requires both an onsite and an offsite power system. Thus, the County argued, LILCO's efforts to disregard the requirements of GDC-17 -- absent any petition for waiver thereof -- was nothing more than an impermissible challenge to NRC regulations.

The Staff believes that the regulations have to be read as a whole, and that GDC-17 should be read in conjunction with our low-power license provision, 10 CFR §50.57(c). The Staff would thus view the requirements for full-power activities (e.g., GDC-17) as not totally applicable when the issue is whether low-power activities should be authorized.

¹ In regard to the time question, LILCO's stated position, supported by affidavit, was that in the event of a loss-of-coolant accident while the plant was operating at five percent power, plant operators would have at least 55 minutes to restore coolant. The same calculation, when performed without some of the "conservatisms" that had been built into it, would show that operators had 110 minutes or three hours in which to restore coolant.

New York State, as an interested state, argued that 10 CFR §2.758 which prohibits attack on the other regulations specifically prohibits looking to the intent of a regulation rather than its explicit requirements, as the Staff would have us do with GDC-17. In addition, in its written response of March 28 it argued that LILCO had failed to comply not only with DGC-17, but also with GDC's 4, 5, 18, 19 and with 10 CFR 50, App. B.

All parties were heard on oral arguments by counsel regarding LILCO's motion for low-power operations at the hearing held April 4, 1984. Extensive arguments on all aspects of the low-power motion and the responses thereto enabled the Board to probe the underlying reasoning of the diverse views presented by the parties. Based upon a consideration of the LILCO motion and the facts alleged in its attached affidavits,² the matters contained in the responsive filings of the other parties and the arguments of counsel in depth, the Board concludes as follows:

1. LILCO has made a sufficient preliminary showing to justify holding a Section 50.57(c) limited hearing.³

² Affidavits concerning the alleged facts and expert opinion were filed by Jack A. Notaro and William E. Gunther, Jr.; William G. Schiffmacher; Dr. Glenn G. Sherwood, Dr. Atambir S. Rao and Mr. Eugene C. Eckert; and William J. Museler.

³ 10 CFR §50.57(c) provides:

(Footnote Continued)

2. The Board will be required to determine whether there is reasonable assurance that the activities associated with LILCO's request for a low-power license can be conducted without endangering the health and safety of the public, in the absence of resolution by another licensing board of the emergency diesel generator contentions related to full-power operation.
3. The provisions of Section 50.57 regarding low-power operations must be read together with the requirements of ,

(Footnote Continued)

An applicant may, in a case where a hearing is held in connection with a pending proceeding under this section make a motion in writing, pursuant to this paragraph (c), for an operating license authorizing low-power testing (operation at not more than 1 percent of full power for the purpose of testing the facility), and further operations short of full power operation. Action on such a motion by the presiding officer shall be taken with due regard to the rights of the parties to the proceedings, including the right of any party to be heard to the extent that his contentions are relevant to the activity to be authorized. Prior to taking any action on such a motion which any party opposes, the presiding officer shall make findings on the matters specified in paragraph (a) of this section as to which there is a controversy, in the form of an initial decision with respect to the contested activity sought to be authorized. The Director of Nuclear Reactor Regulation will make findings on all other matters specified in paragraph (a) of this section. If no party opposes the motion, the presiding officer will issue an order pursuant to §2.730(e) of this chapter, authorizing the Director of Nuclear Reactor Regulation to make appropriate findings on the matters specified in paragraph (a) of this section and to issue a license for the requested operation.

GDC 17⁴ concerning emergency power needs for full-power operations.

4. If the evidence shows that the protection afforded to the public at low power levels without the diesel generators required for full-power operations, is equivalent to (or greater than) the protection afforded to the public at full-power operations with approved generators, then LILCO's motion should be granted.
5. In making such determinations, the record should establish the following:
 - (a) Assuming an accident such as a LOCA at five percent power, how much time would plant operators have before emergency core cooling was necessary, and
 - (b) Could such core cooling be supplied within that time.
6. An expedited hearing should be held on the discrete issues described above, to the extent that such matters are reasonably relevant to a low-power license.

⁴ GDC 17 requires that electric power systems assure that in the absence of either the onsite or offsite power system,

(1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

Authority for the issuance of low-power licenses is contained in 10 CFR §50.57(c), as described above. Motions for a low-power operating license should be ruled on promptly, while decisions on full-power issues not associated with such operations may be resolved at a later time.⁵ In ruling upon Section 50.57(c) motions, a clear distinction must always be made between low-power operations and full-power operations. At the threshold, the Board must consider and resolve the question of whether the factual record arguably supports the requirement of reasonable assurance that proposed low-power operations can be conducted without endangering public health and safety.

In this case LILCO's motion requested approval for the following activities:

- (a) Phase I: fuel load and precriticality testing;
- (b) Phase II: cold criticality testing;
- (c) Phase III: heatup and low power testing to rated pressure; temperature conditions (approximately 1% rated power); and
- (d) Phase IV: low power testing (1-5% rated power).

The original Licensing Board which issued a Partial Initial Decision on September 21, 1983, decided all issues before it except that

⁵ Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361, 362 (1981).

involving the adequacy of the emergency diesel generators.⁶ That matter remains pending in adjudicatory proceeding involving full-power licensing being concurrently conducted by that Board. The jurisdiction of these two boards is separate and independent, and the instant low-power proceeding is not intended to duplicate or relitigate the massive record compiled in the extensive hearings preceding the issuance of the Partial Initial Decision.

Other licensing boards have considered the comparative risks associated with low-power versus full-power operations. It has been noted that the Commission endorsed the general proposition that fuel loading and low-power testing

"involve minimal risk to the public health and safety, in view of the limited power level and correspondingly limited amounts of fission products and decay heat, and greater time available to take any necessary corrective action in the event of an accident."

It has been held that the emergency planning measures required for low-power licenses are not the same as those required for full-power operation, but that the level of planning for a low-power license must be sufficient to provide the same level of protection to the public as

⁶ LBP-83-57, 18 NRC 445, 634 (1983).

⁷ Southern California Edison Company (San Onofre Nuclear Generating Station, Units 2 and 3), LBP-82-3, 18 NRC 61, 188, 190 (1982).

afforded by full compliance with the regulations at full-power operation.⁸

Without passing upon the ultimate merits of LILCO's supporting affidavits at this time, we observe that taken together they furnish sufficient analyses and data to provide a preliminary record to justify holding a limited evidentiary hearing on matters in controversy regarding low-power operations.

The Affidavit of Jack A. Nataro and William E. Gunther, Jr. describes in some detail the steps involved in each of LILCO's Phases I through IV. The affidavit of William G. Schiffmacher lists and describes all the normal and additional sources of offsite emergency AC power available to support the Shoreham plant. The affidavit of Dr. Glenn G. Sherwood, Dr. Atambir S. Rao and Mr. Eugene C. Eckert presents the results of the affiants' review of postulated accidents and transient events which must be accommodated by the Shoreham plant to demonstrate compliance with NRC regulations (Chapter 15, FSAR). The review specifically addressed the risk to public health and safety during low-power operations, taking into account such factors as reduced fission product inventory, increased time available for operators to take corrective or mitigating action, and the reduction in required

⁸ Pacific Gas and Electric Co. (Diablo Canyon Plant, Units 1 and 2), LBP-81-21, 14 NRC 107, 120-23 (1981). See also another decision in the same proceeding, LBP-81-5, 13 NRC 226 at 230 (1981).

capacity for mitigating systems at less than five percent of rated power. Included were findings as to the time in which lost AC power would have to be restored to prevent exceeding the regulatory limits in the event of a concurrent loss of cooling accident (LOCA). Lastly, the affidavit of William J. Museler sets forth LILCO's commitment to effect reactor shutdown in the event of hurricanes, tornadoes, earthquakes or similar happenings, or of power transmission line or onsite backup power problems.

In passing upon LILCO's motion, it is necessary to consider two NRC rules together, and seek to harmonize them in order to reach a sensible result and respect the purposes of both. GDC-17, as discussed above,⁹ contains requirements for full-power operation regarding the absence of either the onsite or offsite power system. It also sets forth the intent of assuring that fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded by anticipated operational occurrences, and that the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

The GDC-17 requirements, which govern full-power operation, must be read in light of the low-power operation provisions of Section

⁹ See footnote 3, pages 5-6, supra.

50.57(c).¹⁰ That regulation gives applicants the right to seek a low-power license by a written motion, in cases where licensing proceedings are pending but uncompleted. The very purpose of this regulation is to permit motions for low-power operations where, as here, the licensing proceedings are not completed because of pending hearings on the satisfaction of all of the requirements of GDC-17, among others.

Looking at the provisions of GDC-17 is only the first step, not the last or only step, as urged by the State of New York and Suffolk County. It is unreasonable to refuse to consider the terms of Section 50.57, as applied to the requirements of GDC-17. This is also true of the findings required by subsection (c) of Section 50.57 on the matters specified in paragraph (a) of that section "as to which there is a controversy." The operation of the facility in conformity with the rules and regulations of the Commission includes the possibility of low-power operations equal to the full-power requirements of GDC-17, provided that (as the Staff states), it can be found by the Board that there is reasonable assurance that the low-power activities can be conducted with the protection to the public at least equal to the protection afforded at full-power operations with the approved diesel generators. The purpose of the limited evidentiary hearing established

¹⁰ See footnote 2, page 5, supra.

by the Board is to determine whether or not there is such "reasonable assurance."

Although LILCO's motion for a low-power license could probably be ruled upon without further evidentiary hearings¹¹ upon affidavits and counteraffidavits, the Board believes that the record would be more complete by granting a limited evidentiary hearing on an expedited basis. The issues should only be those relevant to low-power operations as set forth above.¹² There is no need to reinvent the wheel or to go into a mass of nonrelevant matters. A very substantial record has already been compiled by the Board which issued the Partial Initial Decision (18 NRC 445, supra). Any significant and relevant portions of that record may be used in this limited motion hearing, provided that such testimony or exhibits are specifically identified in advance and proffered in this proceeding.

The Board has also concluded that the taking of evidence on this Section 50.57 motion should be upon an expedited basis. That section itself contemplates prompt action on the motion, prior to the conclusion of the pending evidentiary hearings. The nature of and the risks associated with low-power operations are significantly different from

¹¹ Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-81-5, 13 NRC 361 at 362 (1981).

¹² Id.

full-power operations. Where the construction of any large electric generating facility has been substantially completed and it is ready for testing, it would make no sense not to rule speedily and expeditiously on motions for low-power activities. Expedited proceedings do not prejudice the issues, as the decision on the motion can go either way depending upon the quality of the relevant evidence adduced by the parties. But no party has a right to delay for its own sake, or to engage in dilatory practices. The motion of the State of New York objecting to expeditious consideration, filed on the date of arguments (April 4, 1984), is denied.

Even in cases where power plants have not been completed, licensing proceedings should be conducted expeditiously. The Commission has published a Statement of Policy on Conduct of Licensing Proceedings, CLI-81-8, 13 NRC 452 (1981) to aid licensing boards in expediting hearings. Therein, the Commission said that

"the actions consistent with applicable rules, which may be taken to conduct an efficient hearing are limited primarily by the good sense, judgment, and managerial skills of a presiding board which is dedicated to seeing that the process moves along at an expeditious pace, consistent with the demands of fairness." Id. at 453.

Our own Rules of Practice also permit the use of expedited procedures. For example, 10 CFR §2.711 gives a presiding officer the power to reduce established time limits when there is good cause for so doing, and §2.118 gives him all powers necessary "to conduct a fair and

impartial hearing according to law, to take appropriate action to avoid delay, and to maintain order."

The Commission has also said that "as a general matter when expedition is necessary, the Rules of Practice are sufficiently flexible to permit it by ordering such steps as shortening -- even drastically in some circumstances -- the various time limits for the party's filings and limiting the time for, and types of, discovery." Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit No. 1) CLI-82-32, 16 NRC 1245, 1263 (1982).

Scheduling

The Board heard the opinions of all the parties upon scheduling of any hearing which might be held. LILCO suggested a time frame in which testimony would be filed by all the parties on April 17 or 19, 1984, and hearings would commence on April 24. Hearings on this motion, LILCO submitted, should last no more than one week (Tr. 99-101). The NRC Staff stood by the suggested schedule that it had presented in its written response (at footnote 3, pages 5-6): that LILCO's testimony should be filed on April 13, the testimony of the Intervenors and the Staff on April 23, and the hearing itself should commence by the end of April (Tr. 106-08). Suffolk County proposed a schedule which would include a lengthy discovery period to permit exploration of "a plethora of new, substantive, factual issues" (Tr. 114-17). Discovery, according to Suffolk County's proposed schedule, would continue through May 30. Specification of issues would be on June 15, responses thereto on

June 25, and prehearing conference on July 5. After submission of testimony on July 20, hearing would commence on August 5 (Tr. 113-14).

The Board considered the suggestions in light of the issues as we have framed them. We exercise our judgment on scheduling in accordance with our decision above. We find that the expedited schedule set forth below will not prejudice any party to this proceeding.

<u>Date</u>	<u>Event</u>
April 6-16, 1984	Discovery
April 19, 1984	NRC Staff supplemental SER ;
April 20, 1984	All direct written testimony filed
April 24-28, 30 through May 5, 1984	Hearing

No further adjudicatory hearing days will be scheduled in this matter.

Discovery shall be limited to documents and depositions. We expect the parties to exercise the maximum cooperation in this regard. All prefiled written testimony must be in question/answer format. Testimony filed April 20, including that for Judge Johnson, shall be sent to the Bethesda Office. All filings shall be hand delivered or expedited delivery, and no additional time shall be allowed for mailing. All filings shall be in the hands of the Board not later than 3:30 p.m. on the date due.

Parties to this proceeding are reminded that they have an affirmative duty to promptly inform the Board of any and all changes in

circumstances which might impact upon our hearing on the issues before it.

Standards of practice have been established by the Commission governing the "appearance and practice in adjudicatory proceedings."¹³ The Rules of Practice expressly provide that parties and their representatives "are expected to conduct themselves with honor, dignity, and decorum as they should before a court of law" (Id.). Counsel and parties have always conducted themselves with propriety and decorum in the past, and the Board is confident that orderly and expeditious procedures will continue to be followed.

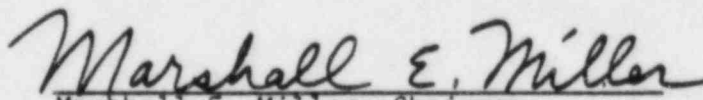
Hearing will commence at 9:00 a.m., local time, on Tuesday, April 24, 1984 at Courtroom 1, State Office Building, Veterans Memorial Highway, Hauppauge, New York 11787.

¹³ 10 CFR §2.713.

This decision was fully participated in by Judge Elizabeth B. Johnson, who concurs in the foregoing Order but was unavailable to sign it when issued.

THE ATOMIC SAFETY AND LICENSING BOARD


Glenn O. Bright, Member
ADMINISTRATIVE JUDGE


Marshall E. Miller, Chairman
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland
this 6th day of April, 1984.

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

-----X
In the Matter :
LONG ISLAND LIGHTING COMPANY : PSC CASE NO. 27563
Proceeding to Investigate the :
Cost of the Shoreham Nuclear :
Generating Facility - Phase II. :
-----X

MOTION FOR AN EXTENSION OF TIME
AND TO EXTEND THE HEARING SCHEDULE

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March 19, 1984

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

-----X
In the Matter :
LONG ISLAND LIGHTING COMPANY : PSC CASE NO. 27563
Proceeding to Investigate the :
Cost of the Shoreham Nuclear :
Generating Facility - Phase II. :
-----X

MOTION FOR AN EXTENSION OF TIME
AND TO EXTEND THE HEARING SCHEDULE

Long Island Lighting Company ("Company") submits this memorandum in support of its Motion for an Extension of Time and to Extend the Hearing Schedule. Essentially, the Company is requesting an extension of time for the filing of rebuttal testimony from April 2, 1984 to October 1, 1984 and the establishment of hearing dates five weeks thereafter.

Preliminary Statement

This proceeding has been delayed numerous times since its inception. On May 19, 1982 the Commission granted Staff's motion to suspend the hearing schedule indefinitely. On May 27, 1982 a prehearing conference was scheduled for June 29, 1982 to adopt a revised schedule in this proceeding. That prehearing conference was held and a schedule was adopted. (Exhibit 1). Less than one month later Staff filed a Motion To Suspend Hearing Schedule dated July 23, 1982. That motion was granted and another prehearing conference was scheduled for August 31, 1982. (Exhibit 2). That prehearing conference was recessed to Octo-

ber 4, 1982 at Staff's request. (Exhibit 3). This conference was rescheduled to November 22, 1982. (Exhibit 4). The November 22, 1982 prehearing conference was held and a new schedule developed. (Exhibit 5).

More recently there have been five schedule extensions all of which have been at Staff's request and not opposed by any of the active parties in the case. (Exhibit 6). Presumably, all of these schedule extensions have been for good cause. Moreover, theoretically, they have facilitated the development of a full and complete record so that the Administrative Law Judge and the Commission "may have an adequate basis for deciding whether or to what extent the incurred cost of the Shoreham project exceeds, by virtue of LILCO mismanagement, imprudence or gross inefficiency, the amount that reasonably may be allowed in rate base" (Order Establishing Proceeding, Issued May 21, 1979, at 5).

By February 10, 1984 Staff and the active intervenors have submitted 879 pages of testimony and 598 exhibits. On the basis of its testimony, Staff and its consultant would exclude \$1.55 billion and include only \$2.296 billion of Shoreham's costs in rate base. (Executive Summary Testimony at 24). In its various versions, Suffolk County and other intervenors would exclude \$1.3 billion on an estimated completion cost of \$3.2 billion (Bertschi Testimony at 15) or an exclusion of at least \$1.274 billion through March 1984. (Bridenbaugh, Danielson, Hubbard and Minor Testimony at 185).

The seriousness of the allegations of mismanagement and the proposed disallowances are beyond doubt. Indeed, it is

possible that the continued existence of the Company in its present form may be affected by this proceeding. In such a context, it is obvious that a full and comprehensive record must be established without prejudice to any party in its attempt to present such a record.

There are numerous reasons why the Company requires an extension of six months for the filing of its rebuttal testimony. In the final analysis, however, all of these reasons are directly related to the absolute necessity for establishing a complete record.

Statement of Argument

First, the operating license hearings before the Atomic Safety and Licensing Board will probably be commenced in May or June 1984 and are likely to consume all of the available time of at least three of the Company's Case 27563 witnesses.

Second, the March 6, 1984 personnel and payroll cuts by the Company have had a debilitating influence on the Company's ability to search files and develop facts to respond to testimony submitted by TBA and Staff, as well as the intervenors.

Third, with the filing of Mr. Palast's testimony on behalf of Suffolk County and others, the scope of this proceeding has been significantly increased. Now it includes economic impact testimony.

Fourth, the scope and nature of the allegations advanced by TBA and Staff require substantially more work in rebuttal than originally envisioned.

Fifth, in order to supply the Commission and the

Administrative Law Judge with a full and comprehensive record, the Company requires extensive discovery.

Sixth, while Staff and Suffolk County have claimed to be responsive to the Company's discovery requests, their responses are replete with claims of privilege, burdensomeness and lack of relevance. In addition, although notified by the Company that full responses were absolutely essential within ten days, Staff's responses and their promptness have been woefully inadequate.

Seventh, an additional six months for the Company to file its rebuttal testimony will not prejudice either the Staff, the County, or any of the other active parties.

Eighth, on the other hand, if the Company is forced to file its rebuttal testimony sooner than October 1, 1984, the Company will be severely prejudiced in its attempt to supply a full and fair record.

Operating License Proceedings

As the County is fully aware, the Company is now conducting a massive effort concerning design review and quality revalidation with respect to the diesel generators. This process involves the work of over one hundred people from Stone & Webster, the Company and its consultant. Among those involved are Messrs. Museler and Kelly who are Company witnesses and probable rebuttal witnesses. Also involved are Messrs. Youngling from the Company and Kammeyer from Stone & Webster who are probable rebuttal witnesses. Mr. McCaffrey, who is also a Company witness and a probable rebuttal witness, is in charge of the overall licen-

ing effort for the Shoreham diesels. This requires his supervision and participation in all aspects of the diesel hearing process outlined below.

Additionally, extensive discovery is taking place prior to hearings in those proceedings. Under Phase I of the discovery from March 1 to March 20, 1984, the County has served a document request of over thirty pages which may require the production of over 100,000 pages of documents. In the second phase of discovery from April 1 to April 20, 1984, follow-up discovery is permitted. Also, twenty-six depositions have already been noticed. Among those to be deposed by the County are Messrs. Museler, Youngling and Kammeyer, all probable rebuttal witnesses.

On May 1, 1984 the County is scheduled to submit its proposed issues to be litigated in that proceeding. Shortly thereafter, the Company must respond. Assuming, optimistically, that prehearing conferences can be held in mid to late May, the actual hearings could begin as early as mid to late June. While the scope and time duration of those hearings will definitely be hotly contested issues, it is reasonable to project that they may be one month long, and conceivably longer. Thereafter, all of the witnesses and essential persons, Messrs. Museler, Kelly, McCaffrey, Youngling and Kammeyer among others, will be committed to drafting, reviewing and filing findings of fact with the assistance of their attorneys.

From the foregoing it should be clear that the commitments of the Company and some of its key witnesses are such that they cannot devote the necessary time to assist in the preparation and sponsorship of rebuttal testimony for the next

five to six months. Moreover, they will not be available for cross-examination or discovery. Under these circumstances, the Company will be severely prejudiced if the filing of rebuttal testimony is not deferred until October 1, 1984.

Personnel and Payroll Cuts

With the omission of as many as one thousand jobs and the well publicized salary cuts, the ability of the Company to search files, reinterview people and develop facts has been affected. The timeliness and even ability of many departments to respond to requests for documents or information to be used to counter the allegations of Staff and TBA has been adversely affected by the necessary reductions. The announced, but as yet uncompleted, corporate reorganization has had a similar influence.

Expanded Scope

The testimony submitted by Mr. Palast on behalf of Suffolk County significantly broadens the scope of this proceeding. In essence, the Company is now required to identify experts and have them draft testimony concerning the economic impact of rate base treatment of Shoreham on Long Island and its economy. While some of this work has already been prepared and presented in other proceedings, the time necessary to update, clarify and present this type of testimony is substantial. It will severely prejudice the Company's right to present a full and comprehensive record if the Company is not afforded ample time to respond.

Additional Work

Staff and TBA have selectively picked through numerous documents to spin together what they deem to be a substantial case against the Company. There can be no doubt that the alleged sums Staff and TB&A would disallow due to mismanagement are substantial. The Company is now required to conduct extensive file searches and reviews to present the full story on each and every allegation. In addition, the testimony of Staff and TBA virtually ignores the facts and statements elicited during the many interviews with Company and Stone & Webster personnel. Because Staff refused to allow a transcript or even stenographic notes to be taken during these interviews, the Company is now compelled to reinterview all of the appropriate persons to obtain the true facts. These reinterviews and aforementioned file searches are crucial to the development of the correct story so that the Commission and the Administrative Law Judge will be able to decide and distinguish between Staff and TBA's invective and documentary and sworn statements concerning the true state of affairs.

Discovery

In addition to internal file searches and confirmation interviews or reinterviews, Staff and TBA, on the one hand, and the County and other parties, on the other, have presented a plethora of new material and theories in their testimonies. The Company has a formidable task; to discover the exact sources for various allegations, the data bases for the numerous quantification theories of Staff, TBA and the County, and the underlying

data for the Bertschi testimony and for Mr. Palast's testimony. With reference to the latter, attached is Exhibit 7, which demonstrates some of the Company's difficulty in this regard. In order to adequately respond to and rebut the allegations of mismanagement and the huge sums supposedly attributable thereto, the Company requires substantial discovery which will take much more time than originally envisioned.

Dilatory Responses

As should be obvious from the various motions to compel answers to interrogatories and document requests dated February 21, 1984, Staff has been less than prompt in responding to the Company's discovery. In addition, further Motions to Compel are now being drafted. Moreover, Staff's attitude seems to be that all Company documents of whatever relevance or description had to be produced, but that the Company is entitled to review only the most limited number of documents based on a most restrictive notion of relevance. In addition, while the Company's interpretation of the attorney-client privilege was tested many times by the Administrative Law Judge, Staff apparently believes that an ipse dixit is sufficient. Staff's game of playing hide the ball may be appropriate for some school yard recreation, but this proceeding is not a game. Certain rules of discovery have been established over the last two centuries. For its own convenience or according to its own whim, Staff cannot ignore the professional dictates by which discovery is to be governed. Briefly, without full and fair discovery in a timely fashion, the

Company's ability to defend itself adequately is rendered nugatory.

No Prejudice to Staff and Intervenor

An additional six months for the Company to prepare and file its rebuttal testimony will not prejudice Staff or the intervenors. Presently there is no driving event, such as a pending rate case or immediate commercial operation of the plant. The adequacy of an acceptable evacuation plan and the status of the diesel generators are both major uncertainties whose resolution is certainly not immediately imminent. Even under the most optimistic scenario, commercial operation of the plant cannot occur until July 1, 1985. Under these circumstances Staff and the intervenors certainly cannot be heard to claim any undue prejudice due to a six month extension.

Severe Prejudice to the Company

For all of the foregoing reasons, anything less than a six month extension for the filing of the Company's rebuttal testimony will severely inhibit the Company's ability to fight for its life. The May 1979 Order establishing this proceeding, at page five, calls for the development of "an adequate basis for deciding whether or to what extent the incurred cost of the Shoreham project exceeds, by virtue of mismanagement, imprudence or gross inefficiency, the amount that reasonably may be allowed in rate base."

The Commission again, recognized the need for a full and complete record in this case when in December 1981 it granted in part Staff's motion for an indefinite deferral of the

schedule: "We recognize that the outcome of that process ('affording all parties an adequate opportunity to present their positions') may defer the conclusion of this case beyond Shoreham's in-service date, but we are prepared to do so if necessary to insure development of a comprehensive record." (Order Granting In Part Staff's Appeal and Modifying Schedule, December 29, 1981 at 4, emphasis added). When the Company is charged with the sweeping types of mismanagement alleged and disallowances of well over one billion dollars, it would be unconscionable not to allow the Company an opportunity to present such a comprehensive record.

Conclusion

In the circumstances where the Company is fighting for its very existence, it must be allowed an additional six months until October 1, 1984 to rebut all of the extremely serious allegations leveled against it. To do otherwise would not only severely prejudice the Company, it would deny the Company the fundamental right to protect itself.

The need for a full and complete record is obvious. Such a record cannot be presented without a six month delay. For all of the foregoing reasons, the Company urgently requests that the Administrative Law Judge grant the relief requested herein

and grant such further relief as he may deem just and proper under the circumstances.

Dated: New York, New York
March 19, 1984

Respectfully submitted,

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STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

ALBANY

CASE 27563 - LONG ISLAND LIGHTING COMPANY - Shoreham Investigation

July 8, 1982

Notice of Revised Schedule

A pre-hearing conference was held on Tuesday, June 29, 1982, to reconvene the hearings pursuant to a Commission Order issued May 19, 1982, and adopt a revised schedule. Following discussion of a tentative schedule submitted by staff, a revised hearing schedule is adopted as hereinafter set forth:

Prehearing conference to review discovery progress	August 31, 1982 (11AM)
Cross-examination of LILCO's direct case	January 4, 1983
Prefiling of all other parties' presentations	March 1, 1983
Cross-examination of same begins	April 4, 1983
Filing of LILCO's rebuttal	May 16, 1983
Cross-examination of same begins	June 13, 1983
Initial briefs	July 15, 1983
Reply briefs	August 22, 1983

Additional conferences to review the progress of discovery may be held as required. All cross-examination will be conducted at hearings held at the Commission's Offices, 24th Floor, Two World Trade Center, New York, New York 10047, beginning at 10:00 a.m., unless otherwise specified.

SAMUEL R. MADISON
Secretary

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

ALBANY

CASE 27563 - LONG ISLAND LIGHTING COMPANY - Proceeding to investigate the costs of the Shoreham Nuclear Generating Facility - Phase II.

RULING DEFERRING STAFF MOTION
TO SUSPEND HEARING SCHEDULE

WILLIAM C. LEVY, Administrative Law Judge:

By letter dated July 23, 1982, staff filed a motion to suspend the hearing schedule in the above entitled proceeding. The motion recites that the revised schedule established in the Notice issued July 8, 1982, was based on a staff proposal which assumed funding for its investigation.

Staff states it is now not possible for it to meet the revised schedule because the Department of Public Service was unable to obtain funding for its investigation during the recently concluded Legislative session.

Staff proposes, however, that the prehearing conference now scheduled for August 31, 1982, be held to discuss revised plans for limited discovery efforts using funds currently available.

No response to staff's motion has been received from LIILCO or other parties. Accordingly, staff's motion is deferred for consideration at the prehearing conference on August 31, 1982 at 11:00 A.M. at the Commission's Offices, 24th Floor, Two World Trade Center, New York, N.Y. 10047.

August 3, 1982

WCL:tlb

William C. Levy

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

ALBANY

CASE 27563 - LONG ISLAND LIGHTING COMPANY - Proceeding to
investigate the costs of the Shoreham Nuclear
Generating Facility - Phase II.

RULING DEFERRING AUGUST 31, 1982
PREHEARING CONFERENCE TO OCTOBER 4, 1982

WILLIAM C. LEVY, Administrative Law Judge:

Staff has orally requested that the prehearing conference now scheduled for August 31, 1982, be recessed to October 4, 1982, on the basis of a possible change in the funding situation. Long Island Lighting Company (LILCO) indicates that it has no objection to the recess, and staff has indicated that it will contact the other parties by telephone.

Good cause having been shown, the prehearing conference now scheduled for August 31, 1982 is hereby recessed to October 4, 1982 at 11:00 A.M. at the Commission's Offices, 24th Floor, Two World Trade Center, New York, N.Y. 10047.

William C. Levy

August 26, 1982

WCL:jjb

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

ALBANY

CASE 27563 - LONG ISLAND LIGHTING COMPANY - Proceeding to
investigate the costs of the Shoreham Nuclear
Generating Facility - Phase II.

RULING RECESSING OCTOBER 4, 1982
PREHEARING CONFERENCE TO NOVEMBER 22, 1982

WILLIAM C. LEVY, Administrative Law Judge:

Long Island Lighting Company (LILCO) has orally requested that the prehearing conference now scheduled for October 4, 1982, be recessed to November 22, 1982, because of the pendency of the operating licensing proceeding and the unavailability of its personnel. Staff indicates that there is no objection to the recess and the Consumer Protection Board's (CPB) and Long Island Citizens in Action's (LICA) pending information requests will be taken up by conference call on Monday, October 4, 1982.

Good cause having been shown, the prehearing conference now scheduled for October 4, 1982 is hereby recessed to November 22, 1982 at 11:00 A.M. at the Commission's Offices, 24th Floor, Two World Trade Center, New York, N.Y. 10047.

William C. Levy

October 1, 1982

WCL:jjb

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

ALBANY

CASE 27563 - LONG ISLAND LIGHTING COMPANY - Proceeding
to investigate the costs of the Shoreham
Nuclear Generating Facility - Phase II.

PREHEARING CONFERENCE RULING

WILLIAM C. LEVY, Administrative Law Judge:

A prehearing conference was held in the above-entitled proceeding on Monday, November 22, 1982. The following schedule was adopted:

LILCO supplemental direct testimony	June	1, 1983
Staff and Intervenors file direct testimony	July	1, 1983
LILCO files any rebuttal testimony	August	15, 1983
Hearings commence	September	12, 1983 at 11 AM
Initial briefs	October	15, 1983
Reply briefs	October	25, 1983

All hearings will be held at the Commission's offices, 24th Floor, Two World Trade Center, New York, N.Y. 10047, unless otherwise specified.

William C. Levy

November 30, 1982

WCL:jjb

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

ALBANY

CASE 27563 - LONG ISLAND LIGHTING COMPANY - Phase II -
Shoreham Prudence Investigation

June 14, 1983

Notice of Prehearing Conference

By Order issued June 8, 1983, Granting in Part Staff's Motion, the Commission also directed the Administrative Law Judge to convene a new prehearing conference for the purpose of making any needed revisions in the procedural schedule for this proceeding.

It seems clear from the Commission's Order that Staff's investigation and discovery will continue through the summer and that the present schedule for the filing of further testimony and hearings must be revised.

Accordingly, the present schedule of filings and hearings is suspended and a prehearing conference will be held before Administrative Law Judge William C. Levy at the offices of this Commission, Two World Trade Center, 24th Floor, New York, N.Y. 10047, on July 27, 1983, at 10 a.m., for the purpose of considering and adopting a revised schedule and resolving any other procedural matters incident to the expeditious disposition of this proceeding.

JOHN J. KELLIHER
Secretary

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASE 27563 - Long Island Lighting Company - Phase II
Shoreham Prudence Investigation

NOTICE CHANGING DATE OF
PREHEARING CONFERENCE
(Issued July 19, 1983)

At the request of Staff of the Department of Public Service and with the acquiescence of other parties, the prehearing conference scheduled for 10:00 a.m., July 27, 1983 in this proceeding is hereby postponed and rescheduled for 10:00 a.m., August 2, 1983, Two World Trade Center, 24th Floor, New York, NY 10047.

JOHN J. KELLIHER
Secretary

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

ALBANY

CASE 27563 - LONG ISLAND LIGHTING COMPANY - Shoreham
Prudence Investigation.

NOTICE OF REVISED HEARING SCHEDULE

A prehearing conference was held before
Administrative Law Judge William C. Levy in the above-entitled
proceeding on Tuesday, August 2, 1983. The following revised
schedule was adopted:

LILCO supplemental direct testimony	November 4, 1983
Staff and Intervenors file direct testimony	January 6, 1984
LILCO files any rebuttal testimony	February 27, 1984
Hearings commence	April 9, 1984

All hearings will be held at the Commission's Offices,
24th Floor, Two World Trade Center, New York, N.Y. 10047,
unless otherwise specified.

JOHN J. KELLIHER
Secretary

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

ALBANY

CASE 27563 - LONG ISLAND LIGHTING COMPANY - Phase II -
Shoreham Prudence Investigation

December 16, 1983

NOTICE OF REVISED SCHEDULE

By letter dated December 7, 1983, Staff requests that the date for filing of Staff's testimony in this proceeding be extended from January 6, 1984 to January 31, 1984. The additional time is required for Staff to prepare and reproduce its testimony.

Staff notes that the other active parties have agreed provided that their dates for filing testimony and the hearing date are similarly adjusted. Suffolk County joins in a letter dated December 12, 1983. Accordingly, for good cause shown, the following revised schedule will apply in this proceeding.

Staff and Intervenor file Direct Testimony	January 31, 1984
Company files Rebuttal Testimony	March 23, 1984
Hearings begin	May 8, 1984 - 10 A.M.

JOHN J. KELLIHER
Secretary

ALBANY

CASE 27563 - LONG ISLAND LIGHTING COMPANY - Phase II -
Shoreham Prudence Investigation

February 2, 1984

NOTICE OF REVISED SCHEDULE

By letter dated January 27, 1984, Staff requests that the date for the filing of Staff's testimony in this proceeding be extended from January 31, 1984 to February 10, 1984. Staff states that it has made every effort to meet the January 31st deadline but additional time is required for the preparation of their testimony.

Staff states that counsel for LILCO, CPB and Suffolk County have agreed to the revised schedule set forth below. Accordingly, for good cause shown the following revised schedule will apply in this proceeding.

Staff and Intervenor file
Direct Testimony

February 10, 1984

Company files Rebuttal
Testimony

April 2, 1984

Hearings begin

May 15, 1984 - 10 A.M.

JOHN J. KELLIHER
Secretary

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(212) 644-2671

February 28, 1984

"MEMBER CALIFORNIA & DISTRICT OF COLUMBIA BARS ONLY"

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175 East Old Country Road
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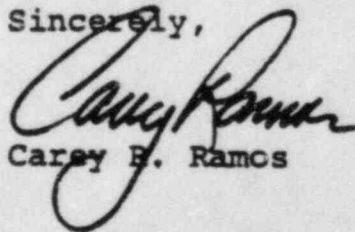
PSC Case No. 27563
Shoreham Cost Investigation

Dear Mr. Kinirons:

We have received your first three sets of document requests and will respond to them as soon as possible. With respect to the requests concerning the testimony of Gregory A. Palast, Mr. Palast is out of town and will not return until March 13. We will endeavor to respond to the requests regarding his testimony insofar as we are able to do so in his absence.

Because there is no one else familiar with much of the documentation you have requested, however, the bulk of our responses with respect to Mr. Palast's testimony will have to await his return. We will make every effort to respond to any outstanding requests promptly upon his return.

Sincerely,


Carey B. Ramos

js

cc: Richard Lorenzo, Esq.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

DOCKETED
USNRC

'84 APR 17 P12:52

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

In the Matter of)

LONG ISLAND LIGHTING COMPANY)

(Shoreham Nuclear Power Station,)
Unit 1))

Docket No. 50-322 O.L.

CERTIFICATE OF SERVICE

I hereby certify that copies of the JOINT OBJECTIONS OF SUFFOLK COUNTY AND THE STATE OF NEW YORK TO BOARD'S ORAL ORDER OF FEBRUARY 22, 1984, AND REQUEST FOR REVISION THEREOF, dated April 10, 1984, have been served to the following this 10th day of April 1984 by U.S. mail, first class, except as otherwise indicated.

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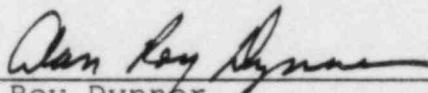
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DATE: April 10, 1984

By Federal Express
* By Hand Delivery