

# ACE-FEDERAL REPORTERS, INC.

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STENOTYPE REPORTERS

October 25, 1984

To: All recipients of transcripts of proceedings of  
Docket No. 50-322-1 (OL)  
Long Island Lighting Company (Shoreham Nuclear Power Station)

I. Please replace the following pages from the transcript of  
October 22, 1984:

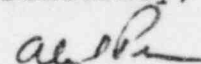
<u>Existing pages</u>	<u>Replacement pages</u>	
24363	24363	(Title and contents pages are being renumbered)
24364	24363.1	
24365	24364	
24365A	24364.1	
24365B	24365	
24365C	24365.1	

II. Please replace the following pages from the transcript of  
October 23, 1984:

<u>Existing pages</u>	<u>Replacement pages</u>	
24586	24586 (new)	(Duplicate text is being removed)
24685	24685 (new) 24685.1	(Portion of text was omitted)

III. If we may be of assistance in rebinding the transcript please  
contact the reporter at the hearing site. We regret the  
inconvenience.

Sincerely,



Alan I. Penn

8410290220 841025  
PDR ADOCK 05000322  
T PDR

TRD1

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UNITED STATES OF AMERICA

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NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the matter of: :

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LONG ISLAND LIGHTING COMPANY : Docket No. 50-322-1 (OL)

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(Shoreham Nuclear Power Station:

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State Office Building,

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Veterans Memorial Highway,

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Hauppauge, New York

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Monday, 22 October 1984

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The hearing in the above-entitled matter was

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convened, pursuant to adjournment, at 10:30 a.m.

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BEFORE:

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JUDGE LAWRENCE BRENNER, Chairman,

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Atomic Safety and Licensing Board.

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JUDGE PETER A. MORRIS, Member,

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Atomic Safety and Licensing Board.

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JUDGE GEORGE A. FERGUSON, Member,

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Atomic Safety and Licensing Board.

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APPEARANCES:

On behalf of the Applicant:

E. MILTON FARLEY, III, ESQ.,

Hunton and Williams,

700 East Main Street,

Richmond, Virginia 23219

On behalf of the Nuclear Regulatory Commission Staff:

RICHARD J. GODDARD, Esq.,

Office of the Executive Legal Director

On behalf of the Intervenor, Suffolk County:

ALAN ROY DYNNER, Esq.,

JOSEPH J. BRIGATI, Esq.,

Kirkpatrick, Lockhart, Hill, Christopher

and Phillips,

1900 M Street, N.W.,

Washington, D.C. 20036

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## C O N T E N T S

	<u>DIRECT</u>	<u>CROSS</u>
2	<u>WITNESSES:</u>	
3	LILCO Panel on Cylinder Blocks	
4	Roger Lee McCarthy )	
5	Harry Frank Wachob )	
6	Charles A. Rau )	
7	Clifford H. Wells )	
8	Edward J. Youngling)	
9	Craig K. Seaman )	
10	Duane P. Johnson )	
11	Milford H. Schuster)	
12	By Mr. Farley	24369
13	By Mr. Dynner	24373
14	<u>DOCUMENTS INSERTED:</u>	
15	Prefiled testimony of LILCO Panel on Cylinder	
16	Blocks (see above) with attachments, and	
17	supplemental testimony, and errata	(Fls Page 24372)
18	Luncheon Recess	24422
19	Afternoon recess	24469
20		
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WRBagb	EXHIBITS	For Id.
1	Applicant's Cylinder Block	
2	Exhibits B-1 through B-50:	24372
3	B-1 through B-6 (Not used)	
4	B-7 - Diagram (not otherwise identified)	
5	B-8 - Diagram: Block top dimensions, Reference Block	
6	B-9 - Section through cylinder head stud	
7	B-10 - Section through non-stud region	
8	B-11 - Cylinder liner	
9	B-12 - Effect of section thickness on tensile strength	
10	of gray cast iron	
11	B-13 - Engine 101 load history, SNPS	
12	B-14 - Engine 102 load history, SNPS	
13	B-15 - Engine 103 load history, SNPS	
14	B-16 - SNPS DG101 crack map	
15	B-17 - SNPS DG102 crack map	
16	B-18 - SNPS DG103 crack map	
17	B-19 - Diagram: typical example of a ligament crack	
18	B-20 - Diagram: stud-to-stud cracking in SNPS DG103	
19	B-21 - Component task evaluation rpt Q-410, 12 pgs	
20	B-22 - Strain gage placement, Rosette and Compliance	
21	B-23 - Strain gage placement: uniaxial	
22	B-24 - Typical cross-section of V-shape crack	
23	B-25 - DNPS DG103 crack map, 9/22/84	
24	B-26 - Strain vs load, Gages 8, 9, 10	
25	B-27 - Strain vs load, Gages 11, 12, 13	

1 WRBagb 1 B-28 - Strain/stress vs. load (Gage 3)  
2 B-29 - Principal stresses vs. load for Gages 8, 9, 10  
3 B-30 - Principal stresses vs. load for Gages 11, 12, 13  
4 B-31 - Strain/stress vs. load (Gage 3)  
5 B-32 - (Deleted)  
6 B-33 - Widmanstätten microstructure in DG103  
7 B-34 - Microscopy comparison  
8 B-35 - Details of Widmanstätten graphite  
9 B-36 - Microstructure of DG101  
10 B-37 - Microstructure of DG102  
11 B-38 - Comparison of eutectic cell boundaries  
12 B-39 - Schematic drawing of specimen location from DG103  
13 segment removed from between Cyls 6 and 7  
14 B-40 - Summary of tensile tests  
15 B-41 - (Deleted)  
16 B-42 - Strain-life data for TDI gray cast iron  
17 B-43 - Reversals to failure  
18 B-44 - Alternating stress intensity range  
19 B-45 - Diagram (not otherwise identified)  
20 B-46 - Perspective view of 3-dimensional block top model  
21 B-47 - 2-dimensional block top model with internal  
22 pressure equal  
23 B-48 - Factors relating stress measured at Shoreham  
24 Gage 13 to block top crack sites  
25 B-49 - Goodman-Smith diagram for low cycle fatigue at  
26 100% load for Shoreham DG-101 and DG-102

1 WRBagb 1 B-50 - Goodman-Smith diagram for high cycle fatigue  
2 at 100% load for Shoreham engines DG101 and DG102  
3 B-51 - Ltr to Proj Engr, LILCO, SNPS, re: Two-year  
4 operating cycle, EDGs, SNPS, 12/15/83, with  
5 attachments (13 pgs)  
6 B-52 - (Deleted)  
7 B-53 - (Deleted)  
8 B-54 - (Deleted)  
9 B-55 - (Deleted)  
10 B-56 - (Deleted)  
11 B-57 - (Deleted)  
12 B-58 - (Deleted)

13 Suffolk County Exhibits: For Id.  
14 Diesel Exhibit D-73 - Liquid Penetrant Exam Rpt, 24398  
15 Cyl liner landing, Cyl #7,  
16 DG102, 2/10/84  
17 D-74 - TER Q-329: Liquid Penetrant 24445  
18 Exam Rpts, Cyl block liner  
19 landing, Cyl #2, #3, #4, #5  
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1 the knowledge of the bases for the conclusion that no  
2 cracks were found or anything else on those other engines.

3 BY MR. DYNNER:

4 Q Dr. Wells, were any cracks found in the engine  
5 block at Catawba?

6 A (Witness Wells) The block top inspections at  
7 Catawba revealed no cracks. These inspections were  
8 witnessed by an engineer under our supervision, Dr. Lee  
9 Swanger.

10 Q Were any other cracks found in the block at  
11 Catawba beside the block top? My question was, any cracks  
12 at all in the engine block at Catawba?

13 A I am unaware of any records of cracks in the  
14 blocks at Catawba.

15 Q Were any cracks found in the blocks at River  
16 Bend?

17 A I'm aware of the inspection records on one block  
18 and no cracks have been found on that block.

19 Q Would you identify the document that you're  
20 reading from?

21 A I am reading the notes compiled for my benefit on  
22 the inspection summaries of River Bend, Shearon Harris,  
23 Catawba, Grand Gulf, Comanche Peak, Plant Vogtle, and San  
24 Onofre.

25 Q Did you personally compile that data and do you

2 AGBpp 1 have personal knowledge of it?

2 A I have personally reviewed the inspection records  
3 of some, but not all, of these inspections. We have through  
4 the diesel generator owner's group DR/QR program received  
5 all the inspection reports from these plants. Some of them  
6 I have gone through and some I have not.

7 Q Were any cracks found in the blocks at Comanche  
8 Peak?

9 A There were indications of casting defects found  
10 in one block top at Comanche Peak.

11 Q Were any cracks found in the block at Grand Gulf?

12 A No block top cracks had been found at Grand Gulf  
13 and they have been inspected by liquid penetrant, I believe  
14 that is just for one engine, that would be two blocks.

15 Q You just said block top. I asked you whether any  
16 cracks were found anywhere in the block; do you know?

17 A I can't assert that, no.

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