

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
3 Before the Atomic Safety and Licensing Board

4 ----- :
5 In the Matter of: :
6 LONG ISLAND LIGHTING COMPANY : Docket No.
7 (Shoreham Nuclear Power Station : 50-332-01-3
8 Unit 1) : (Emergency
9 : Planning)
10 ----- :

11 Hauppauge, New York
12 Tuesday, May 22, 1984

13 DEPOSITION OF WILLIAM J. MUSELER, called
14 for examination by counsel for SUFFOLK COUNTY in the
15 above-entitled action, pursuant to notice, the witness
16 having been duly sworn by DEBRA STEVENS, a Notary Public
17 in and for the State of New York, at the offices of the
18 Suffolk County Executive, H. Lee Dennison Building,
19 Veterans Highway, Hauppauge, New York, at 2:48 p.m., the
20 proceedings being taken down by Stenotype by DEBRA
21 STEVENS, and transcribed under her direction.
22

8412130295 841101
PDR ADOCK 05000322
G PDR

~~1 Q Are you still familiar with them?~~

~~2 A To the extent that I can recall, I am.~~

3 Q What is the purpose of the design review
4 portion of the DRQR with regard to the 16 components?

5 A The purpose of the design review is to
6 ascertain the adequacy of the particular component for
7 the service it has to see.

8 Q What do you mean by the phrase, "the
9 service it has to see"?

10 A Our objective in the design review is to
11 determine if the particular component, when operated
12 under the conditions that the engine might have to see
13 in the service for which it is intended--worst case
14 being an accident at a nuclear plant--whether that
15 component will perform reliably under those conditions.

16 Q Are the conditions that an engine might
17 have to see determined by reference to the specification
18 for the rating of that engine?

19 MR. STICUPE: Object to the form of the
20 question.

21 A Sorry. Would you please repeat the
22 question?

IMAGE EVALUATION
TEST TARGET (MT-3)

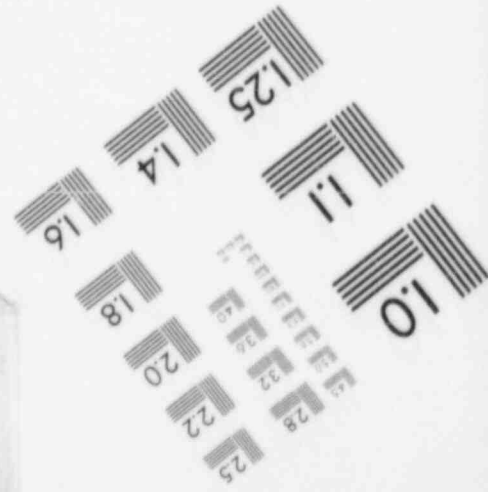
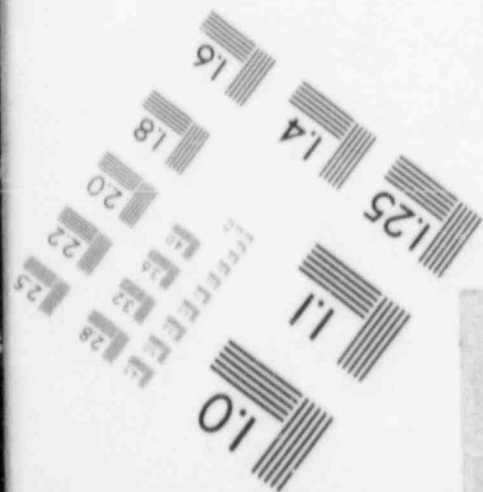
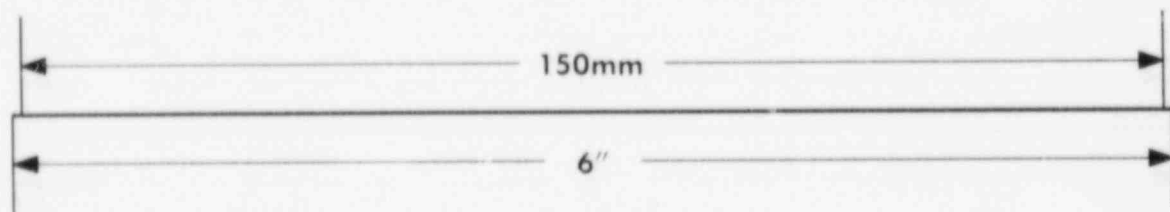
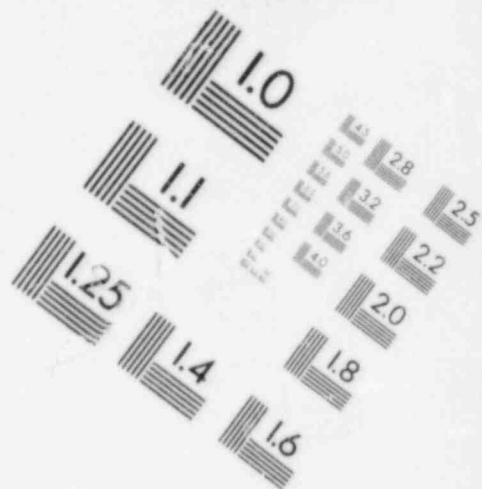
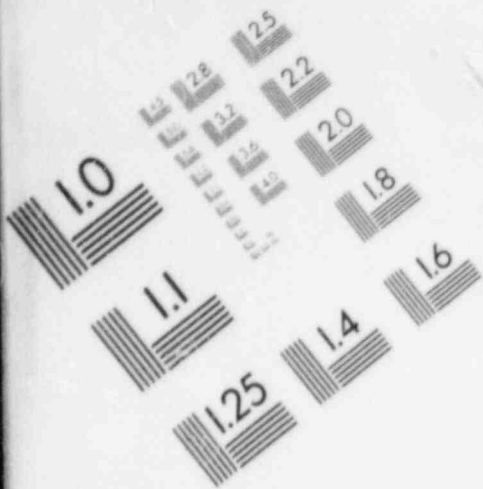
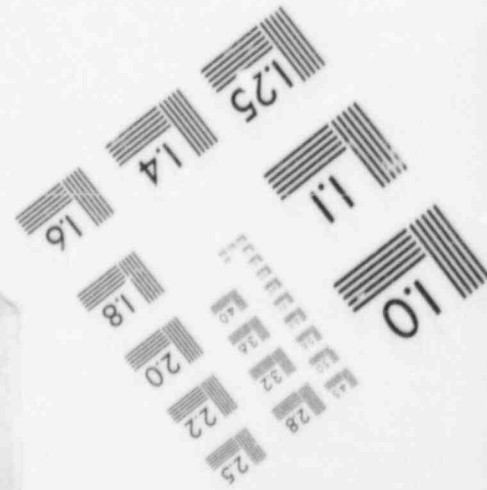
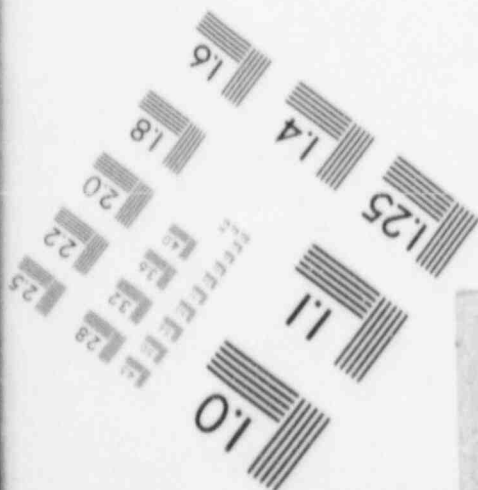
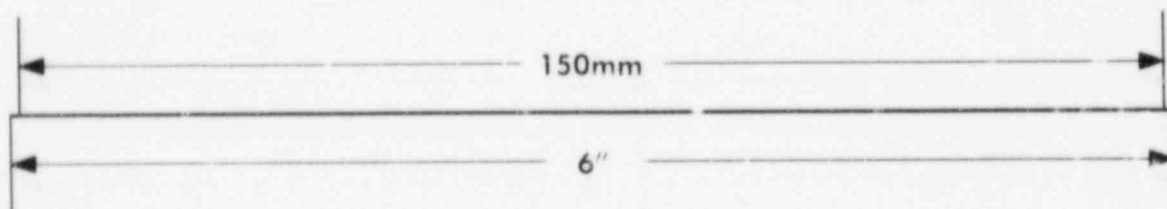
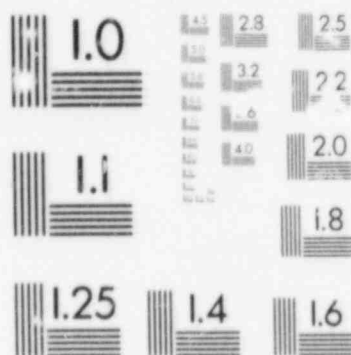
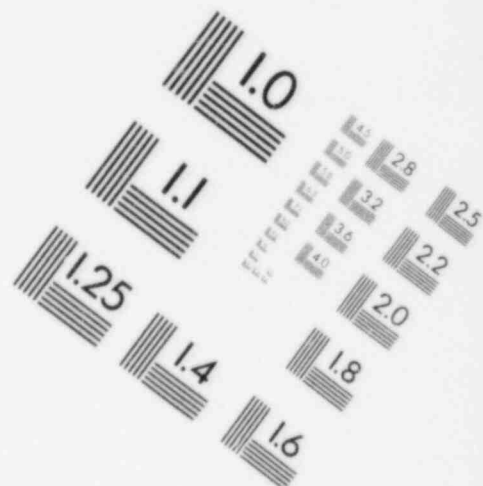
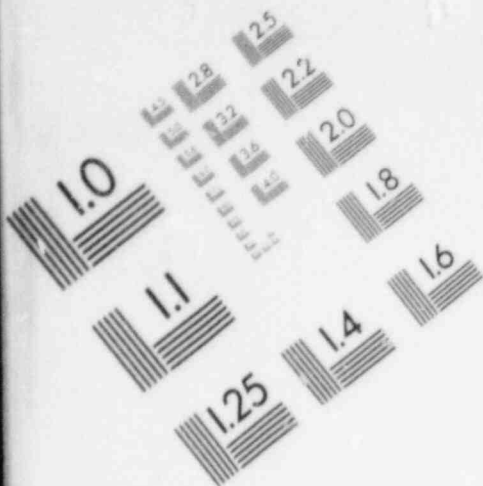


IMAGE EVALUATION
TEST TARGET (MT-3)



1 Q Yes.

2 Are the conditions that a particular
3 engine might have to see determined by reference to the
4 specification for the rating of that engine?

5 A Not really. The service the engine has
6 to see is determined by the particular accident scenario
7 and the electrical load determinations--the electrical
8 load sequences that are applied to it.

9 Those are the conditions that the engine
10 will see, in addition to any conditions during the NRC
11 preoperational test program. that's what the engine
12 will see in service.

13 That is not--in terms of design
14 parameters, that is not identical to the specification
15 engine rating. That is a design point.

16 Q What is the specification engine rating
17 for the Shcreham engines?

18 A Their nominal rating is 3500 kva.

19 Q Sorry? 3500?

20 A Kilowatts.

21 Q That's a continuous rating?

22 A That's the design rating.

1 we thought we would do.

2 So, FAA, for example, developed some
3 techniques that went beyond anything that had been done
4 before. So it was a whole variety of things that we
5 used, until, in our judgment, we thought that those
6 components and the engine as a whole would be able to
7 perform reliably if it were ever called upon to do so.

8 Q Can you briefly describe what the
9 standards are for the Shoreham engines to operate for
10 the service it has to see?

11 MR. STROUPE: Are you talking generally
12 about the engine and every single component?

13 MR. DYNNER: Talking about the engine in
14 connection with the design review portion of the DRQR.

15 MR. STROUPE: I think the question is
16 incapable of being answered. It contains so many
17 different assumptions that have to be made. But if Mr.
18 Museler is capable of doing so, he is free to do so.

19 A The standard that the engine has to
20 meet--and the only thing I can give you, because each
21 component has, obviously, as you pointed out, a task
22 description--the only thing I can say is that the

1 ultimate requirement was that, for Shoreham, those
2 engines in the period from the time the plant goes on
3 line until whatever time we decide we want them to
4 operate until--which may be the first refueling outage
5 or could be longer than that.

6 Certainly, we think it can be--that
7 during the testing of the engines and during the
8 worst-accident scenario that would occur in that time
9 period, that that total service on the engine would be
10 such that the engine would be able to operate reliably,
11 completely through that period, including the accident
12 scenario.

13 Q What testing are you talking about during
14 this, let's say, the 18-month period you mentioned?

15 A There are technical specification
16 requirements for those engines to be started a certain
17 number of times per month. I don't recall what that is,
18 but it's a number that we used to develop the total
19 service requirement.

20 There are six-month test requirements.
21 Again, I can't give you details of those. And the
22 potential for an accident during that period, which

1 means that all three engines would have to run at the
2 loads they are required to run at during a LOOP/LCCA
3 scenario, for seven days.

4 And those loads are relatively mild
5 compared to the testing loads. As a matter of fact, we
6 believe that by the time we get to that point, that peak
7 limits of the periodic testing will be substantially
8 reduced by the NRC, although I can't speak for them.

9 I think that's what is going to happen.
10 Mississippi Power & Light has already been told not to
11 run their engines, at least for the time being, above 75
12 percent power. And I think that's a prudent decision
13 that goes along with the industry information we've had
14 on where these engines will run reliably.

15 Q Has LILCO requested the NRC to reduce the
16 requirements for the loading of the engines?

17 MR. STRCUPE: Formally? Do you mean
18 formally requested?

19 MR. DYNNER: Formally or informally.

20 A I don't know the answer to that. I don't
21 believe we have.

22 Q Do you intend to?

1 A I can't speak to that question. I really
2 don't know.

3 Q Mr. Museler, in connection with the
4 18-month period we are talking about, how many LOOP/LOCA
5 accidents did you postulate might occur during the 18
6 months?

7 A One. I think that was a reasonable
8 assumption.

9 Q That was for seven days, right?

10 A That's correct.

11 Q Did you postulate that all three of the
12 Delaval engines would be operating during the LOOP/LCCA
13 postulated accident?

14 A Yes, we did.

15 Q I think you've said elsewhere--correct me
16 if I am wrong--that you believe that the most highly
17 loaded Shoreham engine would operate up to about 3880 kw
18 for five or six minutes in that case, is that right?

19 A I think what I said--and I don't recall
20 exactly which forum you're referring to, but the number
21 you quote is correct. 3881 is the maximum theoretical
22 load that one engine would see.

1 The answer to that question is no.

2 Q Then you told me he was retained to do
3 work on the Colts, so I asked you this question.

4 Did he do any other work on the TDI
5 diesels besides the work he did on the crankshafts?

6 A As I explained previously, the function
7 of the diesel generator consultants within the technical
8 staff of the Owners Group is to review--is to review the
9 task descriptions, to review the reports in many cases,
10 and to overview the process.

11 Dr. Chen was part of that process. So,
12 in that respect, he did work. Not independent design
13 reviews, but he did work as part of the technical staff
14 in the Owners Group program.

15 MR. DYNNER: Let's take a short break.

16 (Short recess from 3:25 to 4:08 p.m.)

17 Q Mr. Museler, when we were discussing
18 previously the standards for the Phase 1 design review
19 portion of the DRQR, with regard to the engines at
20 Shoreham, does that standard look towards the interim
21 operation of the TDI diesels?

22 MR. STRCUPE: I'll object to the

1 question. I don't understand what you mean by the use
2 of the word "interim."

3 Q Can you answer that?

4 A If by that you mean the criteria we use,
5 or was it intended to insure that the engines would just
6 last for 18 months or the number of hours we anticipate
7 for those 18 months, the answer is no.

8 The criteria, for example, with regard to
9 the bearings, is a criteria that we anticipate
10 getting--I believe the number was 38,000 hours of life
11 out of the bearings. So, the only reason we--the only
12 reason we've used that term in general is that our
13 company, our chairman, has committed to install the new
14 diesels approximately at the first refueling outage and,
15 therefore, we think that that adds even more conservatism
16 to the situation when one realizes that we're
17 only--we're probably only going to operate these diesels
18 for that period.

19 But the standards, as I mentioned, for
20 the bearings are typical for all the components. We
21 believe those components will go far beyond the interim
22 period.

1 Q By "interim operation," you were
2 referring to 18 months, approximately, to the first
3 refueling outage. Is that right?

4 A That's correct, approximately.

5 Q I think you said you've purchased at
6 LILCO three other diesel engines which will replace the
7 TDI engines. Is that correct?

8 MR. STIRCUPE: Objection. I don't believe
9 that's what he said.

10 Q Is that correct?

11 A I don't recall exactly what I said. The
12 fact of the situation is we purchased those engines at a
13 time when it was uncertain whether or not the TDI
14 engines could be repaired satisfactorily.

15 We believe now that they can be, and two
16 have been. So, we purchased those engines as
17 insurance. And, in fact, they still represent insurance
18 against potentially not being able to license the TDI
19 engines.

20 Q Do you intend to cancel the Colts? The
21 Colt diesels are the ones you purchased, is that correct?

22 A I don't believe we do intend to cancel

1 them. In fact, one is on the site now.

2 Q When are the other two Colt diesels
3 expected to arrive at the site?

4 A I believe the second one is either in
5 transit or just about to go into transit. The third one
6 is just about to enter into factory testing phase.

7 So, we anticipate having all of them
8 on-site by July sometime.

9 Q How long do you anticipate it will take
10 to install the three Colt diesels?

11 A It depends on the schedule. The
12 preferred operation is to have them installed and tested
13 by the first refueling outage. They can be installed
14 and tested prior to that if the company decides that it
15 has to have these engines in service in order to reach
16 full power operation, or if the NRC decides that.

17 Q Doesn't the first refueling outage depend
18 upon when you get your license, if you get a license for
19 Shoreham?

20 A It certainly does. And we are--our
21 position is that we intend to have the unit go to full
22 power operation using the IHI diesel generators.

1 Q Were these indications ever mapped?

2 A Yes, they were.

3 Q When?

4 A They were mapped when they were initially
5 detected. Very difficult to map because of the surface
6 conditions. And they were reinspected, as I said,
7 subsequent to that, after engine operation.

8 Q Did any of these indications show any
9 evidence of propagation or growth?

10 A As I said, Mr. Dynner, they were very
11 difficult to map initially. My recollection is that
12 when we reinspected them, there were some that appeared
13 to have grown slightly. My recollection is also that
14 there were, in at least one case, a case of one
15 disappearing. That's why I said that the ability to map
16 these particular cracks, because of the surface finish
17 and the oil in the area, was very difficult.

18 I think our position is that if there is
19 any movement in them, it is very minor and it is not
20 likely at all to jeopardize operation.

21 But it was very difficult to determine
22 exactly whether they were moving at all. As I said, my

1 recollection is that we saw at least one instance either
 2 way. Certainly, cracks don't go away by themselves. I
 3 think that's an indication of the difficulty of
 4 accurately measuring these cracks, which were not very
 5 deep.

6 Q Has Mr. Seaman or anybody else told you
 7 when they expect the DRQR for the Shoreham plant to be
 8 completed?

9 A If you mean the final DRQR report, the
 10 last estimate I had was mid to late June.

11 Q Do you know when the final report on the
 12 cylinder block cracks is expected to be issued?

13 A No, I don't, Mr. Dynner.

14 MR. DYNNER: No further questions.

15 MR. DYNNER: The staff has a few
 16 questions.

17 THE WITNESS: Off the record?

18 (Discussion off the record.)

19 EXAMINATION BY MR. GOSDARD:

20 Q Mr. Museler, some of these questions may
 21 not be within your knowledge because of the fact, as you
 22 say, you've been away from this area since May 1st. If