

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD ⁸³ AUG 23 A11:17

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.

APPLICATION FOR ISSUANCE OF SUBPOENAS

Suffolk County hereby requests the Presiding Officer of this Licensing Board to issue subpoenas in the form attached hereto to (1) Titan Navigation, Inc. ("Titan") and its subsidiary or affiliated companies (collectively, the "Titan Companies"), (2) the State of Alaska, and (3) United States Steel Corporation ("U.S. Steel"). The subpoenas direct the Titan Companies, the State of Alaska and U.S. Steel to produce documents for inspection and copying. Issuance of the subpoenas is authorized by 10 CFR, Section 2.720.

The documents requested are directly relevant to Suffolk County's emergency diesel generator contention concerning the cylinder head cracking problems that have been experienced at the Shoreham Nuclear Power Station ("Shoreham"). The County's contention states that

LILCO has failed to ensure rapid starting and reliable operation of the Shoreham emergency diesel generators . . . [because] the diesels have suffered from cracking of [cylinder heads].

LILCO and Transamerica Delaval, Inc. ("TDI"), the manufacturer of the Shoreham emergency diesel generators, assert that, since originally supplying diesel cylinder heads to Shoreham, TDI has improved the casting and manufacturing processes employed in producing cylinder heads and the inspection and testing techniques used in detecting flaws in TDI's casting and manufacturing processes. According to LILCO and TDI, these casting, inspection and testing improvements ensure that cracks and other casting defects will not occur in the cylinder heads currently produced by TDI (the "new heads").^{1/} Accordingly, LILCO asserts that its commitment to replace all cylinder heads with the new heads prior to fuel load eliminates any concerns respecting the reliability of the cylinder heads on the Shoreham diesel generators.

In support of this assertion, LILCO and TDI rely upon the operating history of the new cylinder heads manufactured by TDI.^{2/} The nexus sought to be established by LILCO and TDI between the reliability and the operating history of the new heads is illustrated by both the Pratt Affidavit and the deposition of Mr. Pratt of August 2 and 3, 1983 (the "Pratt deposition"), pertinent parts of which are attached as Exhibit 1 to this Application.

^{1/} See, e.g., the Affidavit of Edward J. Youngling, the Shoreham Startup Manager, filed with this Board on July 7, 1983 (the "Youngling Affidavit"), at 3-4. See also the Affidavit of Richard A. Pratt, TDI's Customer Service Manager, filed with this Board on July 7, 1983 (the "Pratt Affidavit"), at 9-10.

^{2/} See, e.g., Pratt Affidavit, at 10.

Information regarding the operating history of the new heads was first provided in the Pratt Affidavit, where it was alleged that the new heads are "free from the casting imperfections" detected in the original cylinder heads and that

[c]urrent production cylinder heads installed in six marine DMR V12-4 TDI diesel engines have accumulated over 19,000 hours of reliable operation without any evidence of similar casting imperfections or head cracking failures having occurred.^{3/}

According to Mr. Pratt, these six marine diesel engines are aboard three vessels owned and operated by Titan: the Pride of Texas, the Star of Texas and the Spirit of Texas.^{4/}

Further information regarding the operating history of the new heads was provided at the Pratt deposition when Mr. Pratt testified that TDI has produced

approximately 600 of the new style cylinder heads since September of 1980 . . . and to date, we have experienced no failures similar to the ones that occurred at Shoreham.^{5/}

Mr. Pratt later revealed that TDI had actually manufactured 636 new cylinder heads since September, 1980 ^{6/} and that his testimony regarding the operating history of these 636 new heads was based upon the fact that there had been "no warranty orders issued for replacement of any of the new heads for failures similar to those encountered at [Shoreham]."^{7/}

^{3/} Id.

^{4/} Pratt deposition, at 78-80 (see Exhibit 1).

^{5/} Id., at 42 (see Exhibit 1).

^{6/} Id., at 65 (see Exhibit 1).

^{7/} Id., at 77 (see Exhibit 1).

Mr. Pratt, however, did not review all warranty orders applicable to the 636 new heads since, in his opinion, only seven diesel engines (other than the three Shoreham diesels) have accumulated enough hours to give "confidence in the reliability of the new production heads."^{8/} These seven engines are the six 12-cylinder engines aboard the three Titan vessels and a 16-cylinder engine aboard the M.V. Columbia, a vessel owned by the State of Alaska which, according to Mr. Pratt, was retrofitted with 16 new heads approximately two years ago, and has accumulated about 4,500 hours of operation since that time. Thus, Mr. Pratt reviewed only those warranty orders applicable to a total of 88 cylinder heads.^{9/}

Mr. Pratt's testimony regarding the reliability of these 88 cylinder heads is suspect in light of documents discovered from LILCO following the Pratt deposition. These documents indicate that during September 1982, a cylinder head aboard the Star of Texas cracked in the intake valve port. This same documentation reveals that the Edwin H. Gott, a vessel owned by U.S. Steel and part of that company's Great Lakes Fleet, has experienced numerous cylinder head failures since 1979. These failures are relevant to the reliability of the new heads produced by TDI since, by Mr. Pratt's own testimony, TDI had generally completed its

^{8/} Id., at 84 (see Exhibit 1).

^{9/} Id. at 77-81, 89-90 (see Exhibit 1).

changes in the production, inspection and testing techniques for the new heads as of late 1978.^{10/} Copies of the TDI documents relevant to the head failures on the Star of Texas and the Edwin H. Gott are attached as Exhibit 2 to this Application. No documentation respecting the M.V. Columbia was produced by LILCO.

Based on the foregoing, Suffolk County hereby requests the Titan Companies, the State of Alaska and U.S. Steel to produce for inspection and copying the documents described below. The documents are plainly relevant, because they will tend to establish the actual operating history of the new heads installed on diesel engines owned or operated by entities either specifically referred to and relied upon by LILCO (Titan and the State of Alaska) or disclosed by documents discovered from LILCO (Titan and U.S. Steel). Therefore, they are properly the subject of a subpoena under 10 CFR, Section 2.720. Further, it is necessary that the County have access to these documents in order to conduct cross-examination of the LILCO witnesses during the hearing on the County's diesel generator head cracking contention.

It is requested that the documents be produced within 15 days of service of this Application and the applicable subpoena at the offices of Suffolk County's undersigned counsel, 1900 M Street, N.W., 8th Floor, Washington, D.C. 20036, unless another time or location is mutually agreed upon.

^{10/} Id., at 211-215 (see Exhibit 1).

For purposes of this Application, the word "documents" is to be given its broadest meaning, including, without limitation, correspondence, memoranda, photographs, reports, notes, written analyses, computer printouts, telexes, telecopier transmissions, telegrams, mailgrams, written evaluations, papers, criteria, standards, recordings, notes and minutes of meetings or of conversations or of phone calls, inter-office, intra-corporate memoranda or written communications of any nature, intra-agency memoranda or written communications of any nature, exhibits, appraisals, work papers, studies, opinions, assessments, surveys, projections, designs, drawings, contracts, agreements, diaries, charts, schedules and other written data and material, and all drafts, revisions, and differing versions of any of the foregoing, and also all copies of any of the foregoing which differ in any way (including handwritten notations) from the original.

Request 1 - Titan Navigation, Inc. and subsidiary or affiliated companies

All documents in the possession, custody or control of the Titan Companies regarding the Star of Texas, the Spirit of Texas, or the Pride of Texas which relate in any way to cylinder heads produced or manufactured by TDI since 1978. Without limitation, documents within the scope of Request 1 include:

(a) All correspondence between the Titan Companies, TDI and/or hull and machinery insurance underwriters related to cylinder head cracks or casting defects of any kind, including all warranty claims.

(b) All analyses, reports, appraisals, memoranda or other documents which identify the occurrence of cracks or other casting defects in the cylinder heads, report the condition found and the repairs made or recommended, and disclose the specifications of the fuel used prior to failure of each cylinder head, the engine and cylinder head serial numbers and the name of the vessel involved, the engine model and horsepower rating, the power developed by the engine prior to each cylinder head failure, and the maximum firing pressure on the cylinders prior to failure of each cylinder head.

(c) All documentation which discloses the number of cylinder heads manufactured since 1978 by TDI and used by the Titan Companies or any of them, the date of purchase of such cylinder heads or the date use commenced, and the total accumulated hours for each such cylinder head, including the total hours accumulated prior to the occurrence of any cracking or other defect in any such cylinder head.

Request 2 - The State of Alaska

All documents in the possession, custody or control of the State of Alaska regarding the M.V. Columbia which relate in any way to cracks or casting defects in cylinder heads produced or manufactured by TDI since 1978. Without limitation, documents within the scope of Request 2 include:

(a) All correspondence between the State of Alaska, TDI and/or hull and machinery insurance underwriters related to cylinder head cracks or casting defects of any kind, including all warranty claims.

(b) All analyses, reports, appraisals, memoranda or other documents which identify the occurrence of cracks or other casting defects in the cylinder heads, report the condition found and the repairs made or recommended, and disclose the specifications of the fuel used prior to failure of each cylinder head, the engine and cylinder head serial numbers and the name of the vessel involved, the engine model and horsepower rating, the power developed by the engine prior to each cylinder head failure, and the maximum firing pressure on the cylinders prior to failure of each cylinder head.

(c) All documentation which discloses the number of cylinder heads manufactured since 1978 by TDI and used by the State of Alaska, the date of purchase of such cylinder heads or the date use commenced, and the total accumulated hours for each such cylinder head, including the total hours accumulated prior to the occurrence of any cracking or other defect in any such cylinder head.

Request 3 - United States Steel Corporation

All documents in the possession, custody or control of U.S. Steel regarding the Edwin H. Gott which relate in any way to cracks or casting defects in cylinder heads produced

or manufactured by TDI since 1978. Without limitation, documents within the scope of Request 3 include:

(a) All correspondence between U.S. Steel, TDI and/or hull and machinery insurance underwriters related to cylinder head cracks or casting defects of any kind, including all warranty claims.

(b) All analyses, reports, appraisals, memoranda or other documents which identify the occurrence of cracks or other casting defects in the cylinder heads, report the condition found and the repairs made or recommended, and disclose the specifications of the fuel used prior to failure of each cylinder head, the engine and cylinder head serial numbers and the name of the vessel involved, the engine model and horsepower rating, the power developed by the engine prior to each cylinder head failure, and the maximum firing pressure on the cylinders prior to failure of each cylinder head.

(c) All documentation which discloses the number of cylinder heads manufactured since 1978 by TDI and used by U.S. Steel, the date of purchase of such cylinder heads or the date use commenced, and the total accumulated hours for each such cylinder head, including the total hours accumulated prior to the occurrence of any cracking or other defect in any such cylinder head.

Respectfully submitted,

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August 22, 1983

EXHIBIT 1

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
3 BEFORE THE ATOMIC SAFETY AND LICENSING BOARD
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6
7 In the Matter of

8 LONG ISLAND LIGHTING COMPANY
9 (SHOREHAM NUCLEAR POWER STATION,
UNIT 1.)

No. 50-322 O.C.

10 Deposition of
11 RICHARD A. PRATT

12 August 2, 1983

13 VOLUME I

14 Pages 1 - 157
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26 Reported by ADELE I. NOLAN, CSR No. 1641,
27 LESLIE TANIMURA-WONG, CSR No. 5796
28

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I N D E X

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Afternoon Session 86

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E X H I B I T S

Exhibit No.:

1 Document 120

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1 that caused the occurrences which we experienced there.

2 The improvements in our casting techniques and pattern
3 equipment give me a far greater degree of confidence in the
4 casting integrity and when coupled with all of these inspection
5 techniques, gives me a greater degree of confidence in the
6 integrity of the heads that are going to be put onto the units
7 at Shoreham.

8 We have now produced approximately 600 of the new style
9 cylinder heads since September of 1980 when these major
10 improvements were incorporated, and to date, we have experienced
11 no failures similar to the ones that occurred at Shoreham.

12 We are rapidly accumulating numerous operating hours on
13 the various installations that have these current production
14 heads which further reinforces my confidence in the new head
15 and the fact that the new head is not a totally new design,
16 but is an ongoing evolution of the older style head, with what
17 I would consider major improvements made to it, gives me further
18 confidence that the head will exceed the already acceptable
19 reliability of the older style heads.

20 Q. Thank you, Mr. Pratt.

21 I would like to get back for a moment to the issue
22 raised by Mr. Ellis, which, as I understand it, is that if
23 dye penetrant examination was done with respect to the original
24 Shoreham heads, then how would the fact that you continue to
25 use dye penetrant testing result in cylinder heads of a higher
26 quality and reliability than the original heads produced for
27 Shoreham?

28 [Telephonic interruption.]

1 MR. DYNNER: Okay.

2 MR. ALDEN: Also, I believe it calls for a legal conclusion,
3 but we will review it.

4 [Discussion off the record.]

5 [Mr. Early entered deposition room.]

6 MR. DYNNER: Q. Mr. Pratt, you testified that since
7 September, 1980, Delaval has produced approximately 600 of the
8 new style heads; is that correct? Is my recollection correct?

9 A. Yes, that is correct. It's slightly over; 636 to
10 be precise.

11 Q. Now, do you know what portion of those cylinder
12 heads were installed in new diesel engines?

13 A. No, I would have difficulty putting a figure on
14 that because a certain number of heads have been sold to
15 customers such as Long Island Lighting and other customers
16 which would detract from that number.

17 A ballpark number to be used in installation on new
18 units would be 450.

19 MR. ELLIS: Mr. Dynner, I fail to see the relevance of
20 it. If you could point out to me the relevance, if it is
21 vital to some particular issue, we may endeavor to collect the
22 appropriate figure for you.

23 MR. DYNNER: The relevance of the number.

24 MR. ELLIS: Whether they were put on new diesel engines
25 or old?

26 MR. DYNNER: I think you will see the relevance in a
27 moment, Mr. Ellis.

28 Q. Does Delaval have a record of to whom and when the

1 mischaracterized it or not.

2 MR. DYNNER: Let's ask Mr. Pratt.

3 THE WITNESS: I base that statement on the fact that
4 there had been no warranty orders issued for replacement of any
5 of the new heads for failures similar to those encountered at
6 LILCO.

7 MR. DYNNER: Q. Could you describe what you mean by
8 warranty order?

9 A. Engines typically, when they are shipped from
10 our plant, are warranted for one year of operation after start-
11 up.

12 Any part that does not function properly during that
13 one-year period and possibly for a considerable period after
14 that time that we deem to be replaceable under that warranty,
15 is ordered on our warranty order form. It is a form of no
16 charge parts ordering.

17 Q. Have you reviewed all of the warranty orders that
18 you believe could be applicable to the 636 new heads?

19 A. I have reviewed what I would consider a sufficient
20 number of job files of engines which are in operation with the
21 new heads to verify that, no, we have not had to replace any
22 of those heads for a failure mechanism similar to what occurred
23 at LILCO.

24 Q. What do you think is a sufficient number as you
25 stated?

26 MR. ELLIS: Well --

27 THE WITNESS: Give me a moment to add these up. The
28 number would be 88 cylinder heads.

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1 MR. DYNNER: Q. Do I understand you to say you have
2 reviewed the warranty orders with respect to a total of 88 new
3 cylinder heads?

4 MR. ELLIS: Mr. Dynner --

5 THE WITNESS: No.

6 MR. DYNNER: Q. Could you explain what you meant?

7 MR. ELLIS: Are you asking with respect to preparation
8 for this deposition or whether in the course of his business,
9 he reviews warranty orders?

10 MR. DYNNER: I am asking him on what he based the
11 statement that he made earlier, which I think is a correct
12 characterization of his testimony, that of the approximately
13 636 new style heads produced since September, 1980, there have
14 been no failures similar to those experienced at Shoreham.

15 Q. Is that a correct statement of your testimony,
16 Mr. Pratt?

17 A. That's correct.

18 Q. And I am asking the witness the basis for his
19 statement.

20 Now, could you explain -- if there is no objection
21 from Mr. Ellis -- could you explain what you meant by your
22 review of warranty orders with respect to 88 heads?

23 A. Eighty-eight heads would be the total number of heads
24 installed in the two particular jobs that I researched that
25 have accumulated the greatest number of hours since they were
26 manufactured and shipped from the plant.

27 Q. What were those two particular jobs, Mr. Pratt?

28 A. That was the Levingston ship building, which our

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1 three vessels, each containing two V12 engines and the
2 Alaskan Marine Highway vessel, M/V Columbia starboard engine,
3 which is a V16 unit.

4 If we want to consider, which I think we should, the
5 experience of the five new style heads that have been installed
6 at Long Island Lighting, we can expand that number to 93 and
7 add the hours on those engines -- or sorry -- on those heads
8 which is now approaching about 600 hours apiece.

9 Q. If we take the particular job you referred to at
10 Livingston --

11 A. Yes.

12 Q. -- how many hours were each of the cylinder heads
13 on each of those engines operating based upon the research you
14 conducted?

15 A. The initial ship has 9,000 hours of operation;
16 the second ship has 6,000 hours of operation; and the third
17 ship, 4,000 hours.

18 This is based on research that was done over a month
19 ago, so those times will have increased by now.

20 Q. What was the nature of your research?

21 A. The nature of the research was to get into the
22 service records for those engines since delivery of the
23 ship to verify whether or not there have been any cylinder head
24 failures aboard those vessels similar to the failures encountered
25 at LILCO.

26 Q. By "service records," do you include anything other
27 than the warranty orders?

28 A. The warranty orders are the primary means of conducting

1 that survey.

2 Q. How did you determine the number of hours that each
3 of these diesel engines had run?

4 A. By extracting the hours from either the warranty
5 orders or service reports written by our service representatives
6 when they are aboard the vessels.

7 Q. Did you request any information directly from
8 Levingston?

9 A. No; and these -- that may be a misnomer -- but no,
10 I did not request any information directly from Levingston.

11 Q. Is Levingston operating these vessels or did it just
12 build them?

13 A. Levingston was the constructor of the vessel.

14 Q. Do you know who is operating each of these three
15 vessels?

16 A. Yes. It's Titan Navigation in Houston, Texas.

17 Q. Is this all three of them?

18 A. Yes.

19 Q. Do you have the names of the three vessels?

20 A. The Pride, Star and Spirit of Texas.

21 Q. Did you have any communication with Titan Navigation
22 with respect to the number of hours that each vessel had
23 run?

24 A. No; I did not believe it was necessary to do so.
25 We have had extensive communications with Titan Navigation since
26 these vessels were put into service and I am confident of the
27 hours on the engines now.

28 Q. What are the dates that each of the three vessels

1 was put into service?

2 A. I do not have that on the top of my head.

3 Q. Would you get that information for me, please?

4 MR. ELLIS: We will take it under advisement.

5 It is 12:35; do you want to break?

6 MR. DYNNER: Let me ask a few more questions about
7 this and we will take a break, Mr. Ellis.

8 MR. ELLIS: Fine.

9 MR. DYNNER: Q. Mr. Pratt, the engine on the Alaskan
10 Marine Highway has on the M/V Columbia --

11 A. Yes.

12 Q. -- do you recall approximately the date that that
13 engine was delivered?

14 A. Yes; the engines were delivered ten years ago.

15 Q. Was the engine on the M/V Columbia, the Starboard
16 V-16 engine a new engine that you were referring to?

17 A. No. It is the same ten-year old engine retrofitted
18 with 16 of the new current production heads.

19 Q. Do you remember the approximate date when it was
20 so retrofitted?

21 A. Two years ago.

22 Q. How did you obtain -- excuse me -- how many hours
23 has that engine run?

24 A. Those vessels -- now, she is on her second operating
25 season; since the installation of those heads, those vessels
26 have accumulated 3500 hours per season, so she now has about
27 4500 hours on her since the replacement of the new heads --
28 with the new heads.

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1 MR. ELLIS: You are obviously going to be longer on
2 this. Can we take a break after this question?

3 MR. DYNNER: Sure.

4 THE WITNESS: Again, research of our service records
5 indicates whether or not a particular engine has started up
6 and when it would have started up; and, therefore, knowing the
7 operation of those engines and the approximate number of hours
8 that the engines would accumulate each year, I drew the
9 conclusion that the Levingston and Alaskan Marine Highway and
10 LILCO heads were the only ones that I could reasonably look at
11 and justify as accumulating enough hours to give me confidence
12 in the reliability of the new production heads.

13 MR. DYNNER: Q. Okay. Thank you, Mr. Pratt. We can
14 take a lunch break now. I'm sorry I went slightly over the
15 12:30 point.

16 MR. ELLIS: Let me just say that we took this detour
17 because you said you would cut through it. I am assuming then,
18 that unless you want to, when we come back you may want to
19 consider what, if any, part of the request you want to review
20 and we will take it up at that time.

21 MR. DYNNER: I think what is becoming clear, Mr. Ellis,
22 is that my request now becomes especially pertinent, because
23 it becomes obvious if one were to attempt to obtain accurate
24 information with respect to each cylinder head, one needs in
25 the nature of the complete information that I have requested.

26 Now, it may be on the basis of what I think Mr. Pratt
27 has testified to that Delaval doesn't have documented information
28 about certain of the items that I am going to be interested in.

1 going to encourage you to focus on the ones he stated in his
2 affidavit for your interrogation and not the 636 which his
3 testimony is that that is the total number that has been
4 manufactured under the new model number.

5 MR. DYNNER: Q Mr. Pratt, is it correct that with
6 respect to your assertion either in your affidavit or in your
7 testimony here today that you are relying for your statement
8 that the reliability record of the current production model
9 cylinder heads gives you assurance that the new cylinder heads
10 are free from the type of casting imperfections detected at
11 Shoreham, that you are relying solely upon the operating history
12 of the 88 heads that you identified previously today?

13 A Yes. I think that's a valid assumption.

14 As Mr. Ellis was stating earlier, we have built 636 of
15 these heads since September of 1980; however, numerous of them
16 are not installed and sitting on shelves in the warehouse.

17 Numerous of them -- in fact the greater majority of them
18 are installed on new construction engines that have either not
19 been installed and started up yet, or have very minimal hours
20 on them, and therefore, I did not take them into account when I
21 was considering what jobs or heads to look at and base any kind
22 of an assumption on reliability of the new heads, and that's
23 why I focus my attention on the Texas class vessels which have
24 the 72 heads, on the M.V. Columbia, and on the five heads at
25 LILCO.

26 Now I should mention in passing that the LILCO engines
27 operate at a BMEP rating of 225 rating -- BMEP.

28 The cylinder heads on the Texas class vessels operate at

1 248 BMEP, which is roughly 10 percent more load than the heads
2 at LILCO will see.

3 Therefore, they are stressed higher than the heads of
4 LILCO will be stressed, and I will state again that the 19,000
5 hours that they have accumulated -- now that's 9,000 hours per
6 hull, per engine, it's not 9,000 hours distributed over two
7 engines, so that's two engines that have 9,000 hours each on
8 them.

9 If you are going to distribute it over the entire number
10 of engines, it would be 38,000 hours total.

11 Q The Pride, you said, had two engines at 9,000?

12 A Right.

13 Q The Star, I think you said, had two engines at 6,000?

14 A Correct.

15 Q The Spirit has two engines at 4,000?

16 A Uh-huh.

17 Q And the --

18 A Columbia.

19 Q And the refitted engine on the M.V. Columbia has about
20 4,500 hours; is that correct?

21 A Correct.

22 MR. ELLIS: What was that last figure? I'm sorry.

23 THE WITNESS: Forty-five hundred hours.

24 MR. DYNNER: Q Do I take it that, in your view, the
25 operation of the cylinder heads in the marine application is
26 relevant to the reliability of the cylinder heads in a nuclear
27 application?

28 A Yes. That would be my opinion.

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
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8 In the Matter of
9 LONG ISLAND LIGHTING COMPANY
10 (SHOREHAM NUCLEAR POWER STATION,
11 UNIT 1.)

12 Deposition of
13 RICHARD A. PRATT

14 August 3, 1983
15 VOLUME II
16 Pages 158 - 247
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27 Reported by ADELE I. NOLAN, CSR No. 1641,
28 LESLIE TANIMURA-WONG, CSR No. 5796

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1 They are not magically all incorporated as of
2 September, 1980.

3 Q. So would it be -- are there new heads, as you use
4 the term new heads, that were manufactured prior to September
5 of 1980, as you use the term?

6 A. Certainly.

7 Q. And given your definition of new heads, are the
8 heads that you -- strike that.

9 That's all the questions I have.

10 MR. DYNNE: All right.

11 FURTHER EXAMINATION BY MR. DYNNE

12 MR. DYNNE: Q. Mr. Pratt, I would like to stick with
13 this discussion for just a few minutes.

14 You stated in response to Mr. Ellis that there were
15 new heads, as you define them, manufactured prior to 1980.

16 Could you define for me exactly what you mean by new
17 heads?

18 A. I would define a new head as a head that had been
19 completely MPI by our foundry, pre-heated prior to the
20 welding in of the valve seats, subjected to the two hydrostatic
21 test procedures at 100 psi, stress relieved and pickled.

22 Q. Now Mr. Pratt, what is the earliest date that all
23 of these things could have occurred with regard to the
24 manufacture of a head?

25 A. 1978.

26 Q. Do you know when in 1978?

27 A. Late 1978.

28 Q. Is it therefore fair to say that your definition of

1 a new head is any head that was produced subsequent to late
2 1978?

3 A. That would be a fair statement, yes.

4 The September, 1980 date is when we acquired the new
5 pattern equipment which caused an external visual appearance
6 change, and was done primarily to incorporate the ongoing
7 changes to the old patterns, and in an effort to reduce
8 foundry rework.

9 Q. Were all of the changes in the casting techniques
10 made by late 1978 -- that is to say, all of the changes in
11 the casting techniques that you testified to yesterday,
12 alluded to this morning?

13 A. A great majority of them.

14 The only change that I'm aware of that was not
15 incorporated by that time was the change in the gating, and
16 I believe that was incorporated after September of 1980.

17 Q. But you don't regard that as sufficiently important
18 so that it would change your definition of the new heads; is
19 that correct?

20 A. No, I do not.

21 That would merely eliminate problems and foundry
22 rework.

23 Q. Well, based upon this recent definition, your
24 definition of the new heads --

25 MR. ELLIS: Read that back again.

26 MR. DYNNER: Q. Based on this recent definition that
27 you have given of the new heads --

28 MR. ELLIS: Are you implying --

1 MR. DYNNER: Let me finish the question and then
2 you can object if you wish.

3 Q. Is it fair to say that there have been more than
4 636 new heads manufactured by Delaval?

5 A. Yes.

6 Q. When you gave us the history of operation of new
7 heads yesterday, why did you refer only to the 636 heads that
8 had been produced since September, 1980?

9 A. Because the --

10 MR. ELLIS: Let me object to the question.

11 I think it's only fair to the witness that if we had
12 the transcript, I think that's the implicit -- implicit in
13 the question.

14 But in any event, answer the question, Mr. Pratt.

15 MR. DYNNER: Do you object to the question?

16 MR. ELLIS: Yes, I do.

17 MR. DYNNER: All right. Let me clarify the basis for
18 the question, Mr. Pratt.

19 Q. Do you recall yesterday we talked about your
20 definition of new heads -- I asked him whether he recalled.

21 You certainly can't object to that, can you?

22 MR. ELLIS: I don't object.

23 THE WITNESS: We discussed a definition for heads
24 that were termed as new, yes.

25 MR. DYNNER: Q. And do you recall that in my ques-
26 tioning of you yesterday, we were talking about new heads as
27 those that were manufactured since September of 1980?

28 A. That was the general gist of the conversation at

1 that time, yes.

2 Q. Yes.

3 A. Heads that incorporated the new -- or the cast
4 using the new pattern equipment.

5 Q. Yes. And now the definition that you have given
6 in response to Mr. Ellis' question would indicate that you
7 are talking about new heads as being those that were manu-
8 factured since late 1978; isn't that correct?

9 MR. ELLIS: I object to the question so far as it
10 implies you asked him for a definition yesterday of new heads
11 as he was using it in his affidavit.

12 Perhaps you did, and perhaps he answered as you said --
13 I don't have the transcript before me, but I recall that was
14 not his intention in my discussions with him -- that's why I
15 asked the question.

16 MR. DYNNER: I think you are mistaken, Mr. Ellis, but
17 I think we can ask the witness whether --

18 MR. ELLIS: I thought you asked him how many heads were
19 produced since September of 1980.

20 MR. DYNNER: I think the transcript will show we
21 arrived at a definition of new heads yesterday during the
22 course of my examination.

23 Be that as it may, would you please reread the question
24 for us?

25 THE REPORTER: [Record read as follows:

26 "Question: Yes. And now the definition
27 that you have given in response to Mr. Ellis'
28 question would indicate that you are talking

1 about new heads as being those that were manu-
2 factured since late 1978; isn't that correct?"]

3 THE WITNESS: Again, that is not totally correct,
4 because it depends on the drawing of a specific line to deter-
5 mine whether or not a head is new.

6 I use the September, 1980 definition because that --
7 those are the heads that LILCO has, and will be putting on
8 their engines now.

9 MR. DYNNER: All right.

10 Q. Now, Mr. Pratt, were the changes that were made in
11 the production of the cylinder heads at Delaval, which you
12 believe solved the problems that arose with the Shoreham heads
13 made subsequent -- excuse me -- made by late 1978?

14 A. Yes, they were.

15 Q. So in your judgment, would the operation history
16 of heads that were manufactured since late 1978, be relevant
17 to the consideration of the reliability of the Delaval heads?

18 A. Yes, it would.

19 Q. Now you very kindly yesterday gave us your view of
20 the operating history of a portion of the 636 heads that had
21 been manufactured since 1980 in September; is that correct?

22 A. Correct.

23 Q. Do you have information concerning the operating
24 history of heads produced between late 1978 and September of
25 1980?

26 A. I do not have that material at my fingertips.

27 It would be available in our records, yes.

28 Q. Have you reviewed that material in order to make

EXHIBIT 2

FILE

CUSTOMER'S NAME M.V. STAR OF TEXASDATE SEPT 20-26 1982ADDRESS AT SEA ON ROUTE TO PAKISTAN

SERVICE ORDER NO.

PERSON CONTACTED KENDALL KITINDJA - CHIEF ENGINEERPORT - 4073
TOTAL ENGINE HOURS STBN-4072ENGINE SERIAL NO. 78036-37MODEL DMRV-12-4SPECIFIC LUBE OIL
CONSUMPTIONENGINE LOCATION SHIP - MAIN PROPULSIONSERVICE ENGINEERS NAME PATRICK CROSSFOR CUSTOMER SERVICE
OFFICE USE ONLY

Complete this form with details of work done, information obtained, etc., and mail DAILY

9/20/82

1300 engines on diesel fuel to change out heavy fuel filter 1330 back on heavy fuel oil. Cylinder temps on #2-LB port engine ser no. 78036 starting to rise (930°) Every-
thing else O.K.

9/21/82

10:25 switched to diesel fuel 10:40 stopped both engines to change out a head on the port engine #2-LB head engine ser #78036 total engine hours 3974. Disassembled the head and both exhaust valves were burnt and the head was cracked in the intake valve port. Left valve port with head upside down standing in front of the intake. ~~That's all~~ 16:22 underway again after a lot of trouble with the head relief valve leaking.

K71-592D

RECEIVED

OCT 20 1982

PRODUCT ENGINEERING

9/22/82

Changed the heavy fuel filter at 1300. 1330 back on heavy fuel. No. 3-LB port engine cylinder temp starting to rise (920°)

9/23/82

J34-202D

Arrived at Suez Canal at 15:48. Changed #3-LB port engine cylinder head and changed the air regulator filter and soot filter in the engine control panel. Lub oil strainers were cleaned. Due to go through the canal in the 23:00 convey.

9/24/82

01:09 departed the Mediterranean starting the canal transit. 10:12 shutdown at

IF CUSTOMER WANTS PARTS, OBTAIN HIS PURCHASE ORDER NO. or AUTHORITY

HOUSTON, TX

9 NOV. 82

1040.

MC

TO: DELAVAL - OAKLAND

FR: TITAN NAVIGATION - HOUSTON

ATTN: R. A. PRATT / T. KEMP

RECEIVED

RE: M/V STAR OF TEXAS

NOV 9 - 1982

STANDARD

LOG: 0593

PLS BE ADVISED THE SUBJ USL IS PRESENTLY DUE U.S. EAST COAST
(UNCONFIRMED SAVANNAH GA) 20TH NOV. 1982. THE USLS PRESENT
NEEDS ON ARRIVAL ARE AS FOLLOWS:

↓ K71-5920

AA) CYLINDER HEADS - 1 HEAD REPORTED CRACKED AT INLET VALVE
BRIDGE AND THEREFORE, UNUSABLE. THREE MORE HEADS WITH BURNED EXH
SEATS REQUIRING RESELLITE. OUR RECORDS INDICATE 3 HEADS SHIPPED
FM BALTIMORE FOR REMARK DUE TO CRACKED EXH VALVE SEATS THEREFORE,
WE EXPECT TOTAL 7 CYLINDER HEADS TO BE MADE AVAILABLE TO THE USL
ON ARRIVAL.

PLS USE OUR P.O. NO. 2-232 FOR THESE TWO ITEMS

REGARDS

UNITED STATES STEEL CORP.
GREAT LAKES FLEET

File 4/ Mech. Rep
SN 75039/40

MECHANICAL REPORT (SUMMER & LAY-UP)

WC&E 3121

CODE

STEAMER/M.V. EDWIN H. COTT

SS 11-2-81

REPORT NO. 81 - 222

ITEM: NAME PLATE DATA & SERIAL NO.

STED MAIN ENGINE DMRV 16-4

ENGINE HOURS 13,683

#3 Right Bank head

DATE OPENED 10/8/81 DATE OPENED PREVIOUS

A. ROUTINE INSPECTION
REPORTER TROUBLE

☐☒

#3 R. Bank Head Leaking Jacket water into Exhaust chamber.

B. CONDITION FOUND: Head cracked or hole in it.

C. PERMANENT
TEMPORARY

☐☐

REPAIRS MADE THIS TIME: Chanced #3 Right Bank Head and all gaskets.

Cracked Head No. WT P68

CAST

2-22-80

891E

SRP

TO OAKLAND CALIF

New Head on #3 Right Bank, Number WT 814 7-9-80 460F SRP

D. PARTS USED:

1 Cylinder head P/N 1A-6447-ABS

1 Gasket Kit P/N 1A-6364

E. RECOMMENDED REPAIRS FOR FUTURE, IF ANY:

RMR- 9278

542- 67036-59-102

MEL # 2366

CHIEF ENGINEER

[Signature]

R. H. Hutton

F. (IF ATTENDED)

NAME OF A.B.S. SURVEYOR

FOR CLASS CRED

NAME OF U.S.C.G. INSPECTOR

FOR INSP. REG

NAME OF USS REPRESENTATIVE

NAME OF MANUFACTURER'S REPRESENTATIVE

MAIL CARBON COPY TO FLEET ENGINEER'S OFFICE SAME TRIP AS EACH JOB IS COMPLETED.

NO. MEN 4 HRS. 6

① 600H
② File 75039/4c

11-18-80
S.S.

ENTERPRISE OAK

NO INFORMANT 1-045000000 11/18/80
TAX STENOPLT BUL
202046 ILLIT- MINNESOTA 11/18/80
TLX 202004 ENTERPRISE OAK

BT

ATTN: MR. BERT DURIE
MR. STEVEN SCHWABER

SUBJECT: MR. EDWIN H. GOTT
OAK 75039-40

RE: R&R REQUESTS

ITEM B - ON 11/18/80 CYLINDER HEAD WAS 12 IN STANDARD ENGINE WAS
CHANGED OUT BECAUSE OF CRACK IN WY OF BRIDGE BETWEEN
EXHAUST VALVE CAVITIES:

DATE - 11-18-80

11-18-80

11-18-80

2000 HOURS - SERVICE

REPLACED WITH ON BOARD SPARE:

DATE - 11-18-80

11-18-80

11-18-80

11-18-80

CAN YOU ADVISE STATUS OF 16 SPARES ON ORDER 7/21/80 - P.O.
620-67036-56-102; REL. #1910; CONFIRMING TO MR. DURIE 8/1/80 BY
MR. BERTZ?

BRUCE E. LIBERTY
ENGINEERING DEPARTMENT
LAKE SHPO. : 400 WISCONSI BLVD.
DULUTH, MINNESOTA 55802
OUR TEL 910 561 0050

AAAA

1700 000

BT

ENTERPRISE OAK

SERVICE D

Telex Response
RMR 5014-76

The following are minutes of a meeting held with Transamerica DeLaval on November 20, 1980 at the Lake Shipping Office - Duluth, Minnesota

In Attendance:	Mr. G. Trussell	Transamerica DeLaval
	Mr. R. Erickson	Transamerica DeLaval
	Mr. G. King	Transamerica DeLaval
	Mr. S. Schumacher	Transamerica DeLaval
	Mr. D. Wyncott	Nalco Chemical Company
	Mr. S. Lamp	Nalco Chemical Company
	Mr. R. McCartney	USS Research Laboratory
	Mr. R. Bertz	USS Lake Shipping
	Mr. B. Liberty	USS Lake Shipping
	Mr. E. Merry	USS Lake Shipping

The purpose of the meeting was to discuss and resolve certain outstanding problems relative to the operation and maintenance of the DeLaval DMRV engines, Serial #75039-40, installed on the M/V EDWIN H. GOTT.

1. Head Problems

- 493-S18E
SEP →
- a. Review of 1980 Experience - Since fit-out 1980, five heads have failed. Four of these heads were on the starboard engine and one on the port. Of the five heads, the last failure on November 13, 1980 was to a stress relieved and pickled head that accumulated 2,392 hours prior to failure.
 - b. Mr. King gave a review of Transamerica DeLaval's research into the head failure problem. He concluded that (1) locked up casting stresses in the heads precipitated cracking failure and (2) a severe aeration problem in the starboard engine contributed to hot spots which in turn caused head failures. The Water Treatment Program supervised by Nalco Chemical Company did not contribute to the failures.
 - c. At this point, Mr. Bertz stated that he would meet separately with Mr. King and Mr. Erickson to discuss any contributing financial responsibility on the part of U. S. Steel concerning the head failures. This meeting was held at the conclusion of the group meeting. Mr. Bertz again stated that U. S. Steel did not have any contributing responsibility for the head cracks and we would stand on the answer to the problem given in Mr. Bertz' letter to Mr. Durie dated June 13, 1980. Transamerica DeLaval indicated that the standpipe causing the aeration was designed by the shipyard naval architect, R. A. Stearn, and therefore, was considered owner-furnished. Mr. Bertz pointed out that the standpipe was constructed in accordance with information received from DeLaval and neither the shipyard nor U. S. Steel was in possession of the Transamerica DeLaval drawing #00-700-01-DM showing a detail design of the standpipe for jacket water even though the drawing was dated in October 1973. Mr. King acknowledged that this design information was not submitted to the owner prior to placing the engines in operation and this was regrettable. Mr. Bertz again pointed out that there was certainly no justification for U. S. Steel to share in the cost of the warranted head failures. Mr. King stated that he personally accepted this explanation. If his superiors did not care to appeal it, the matter would be considered closed.

January 23, 1981

of head failures]. This date is approximately two weeks after the engineers first noticed recalling the foaming problem, and three weeks after the Nalco 2000 was put into the system. Dave Clifford recalled some foaming problems early in the season. During subsequent review of the jacket water treatment and test logs, it was found that Nalco 2000 was used as the jacket water treatment early in the season also. I was unaware of this condition previously.

The heads which have failed thus far and were found during lay up are as follows:

No. 3 R.B. starboard N30 344E 10-12-79 SR 4203 Hd Hrs
10,215 Eng. Hrs.

RMR 5814-78 cracked at Exh. bridge
Replaced with P68 891E 2-22-80 SRP

No. 8 R.B. starboard J29 138T 10,181 Hd Hrs 10,215 Eng Hrs

RMR 5814-79 Cracked (pin hole) at each area
Replaced with H31 434S 2-24-76 SRP

No. 6 L.B. port J16 156D 2-3-79 8,022 Hd Hrs 10,163 Eng Hrs

RMR 5814-80 Cracked through intake seat
Replaced with 026 589E SRP 12-7-79

No. 1 R.B. port J65 273D 6,723 Hd Hrs 10,163 Eng Hrs

RMR 5814-81 Cracked through intake seat
Replaced with _____

Water deposits also found on pistons:

No. 4 L.B. starboard	No. 3 L.B. port
No. 8 R.B. starboard	No. 3 R.B. port

(This condition similar to that which exists on the cylinders with failed heads.)

Measured starboard engine valve stem wear. Wear is considerably worse than the port valves. Plotted data. Plot shows normal straight line wear up to 5000 hours. At this point the starboard exhaust guides were replaced with new guides. Plot shows accelerated wear on exhaust valve stems from 5K to 10K hours. The following starboard valves were recommended replaced:

Transamerica
Delaval



RECEIVED

9 2 1981

PRODUCT ENGINEERING

Steve Schumacher
MEMO *File R. Kamin*

Transamerica Delaval Inc.
Engine and Compressor Division

INTER-OFFICE CORRESPONDENCE *AFK*

J2B

To: Geoff King

RECEIVED

Date: February 27, 1981

MAY 06 1981

GBS

From: S. G. Schumacher

SERVICE DEPARTMENT

Subject: M/V Gott Trip Report, S/N 75039/40, December 29, 1980 to February 8, 1981

Objective: To assist the owners in disassembly, evaluation, documentation, and reassembly of the main engines and related auxillaries.

Personnel Contacted:

Ralph Bertz, Superintendent, U. S. Steel

Bruce E. Liberty, Senior Mechanical Engineer, U. S. Steel

Laverne Pierson, Chief Engineer, U. S. Steel

Bill Shuga, First Assistant Engineer, U. S. Steel

Introduction: Due to the extended nature of this trip, I compiled a daily log of specific work accomplished. The customer was given copies of that log on a weekly basis. (See attachment)

SUMMARY

- 1) Controls worked satisfactorily during the season and will require only standard maintenance during lay up.
- 2) Four quantity heads failed water test. One quantity was an SR head. Expect three more heads have failed, but passed the water test.
- 3) The jacket water systems of both engines foamed excessively during the latter part of the season; air was trapped in the top of the standpipe, and was eventually pumped through the engines.
- 4) The new style gas tight manifolds performed well and have very little buildup in the slip ring area.
- 5) One cylinder head stud was found broken on #3 L.B. Port, 1/4" above the upper level of the head, in the thread area. U. S. Steel was torquing to 3,300 ft. lbs; will be reassembling

N30-344E
SE

UNITED STATES STEEL CORP.
GREAT LAKES FLEET

WC&E 3121

MECHANICAL REPORT (SUMMER & LAY-UP)

CODE STEAMER/M.V. E.H. GOTT

ITEM: NAME PLATE DATA & SERIAL NO.

Cylinder Head Part #03-360-03-0F

Head was NOT STRESS-RELIEVED PRIOR
TO BEING PLACED INTO SERVICE.

WT H23 786 W 10-3-78 ^{CAST}

DATE OPENED 11-01-79 DATE OPENED PREVIOUS 5-8-79

#1 RB Starboard Engine

A. ROUTINE INSPECTION ☐
REPORTER TROUBLE ☒

B. CONDITION FOUND: Cylinder head cracked Through in Take valve seat

C. PERMANENT ☒
TEMPORARY ☐

REPAIRS MADE THIS TIME: Installed new head

WT J65 273 D 1-29-79 SR SR

D. PARTS USED: 1-Cylinder Head Part No. 03-360-03-0F
1-Gasket Kit Part No. 1A-6364

E. RECOMMENDED REPAIRS FOR FUTURE, IF ANY:

3474 Engine Hours
4-Men 6 hours

F. (IF ATTENDED)

NAME OF A.B.S. SURVEYOR

NAME OF U.S.C.G. INSPECTOR

NAME OF USS REPRESENTATIVE

NAME OF MANUFACTURER'S REPRESENTATIVE

CHIEF ENGINEER W.E. Shuga

FOR CLASS CREDIT

FOR INSP. REG

Transamerica
Delaval



MEMO

Transamerica Delaval Inc.
Engine and Compressor Division

INTER-OFFICE CORRESPONDENCE

To: C. S. Mathews

Date: February 17, 1981

From: G. E. Trussell

cc: R. J. Pabers
A. C. Barich
R. M. Erickson
~~Geoff King~~

Subject: U.S. Steel, EDWIN H. GOTT
DMRV-16-A S/N 75039/40

RECEIVED

FEB 19 1981

SERVICE DEPARTMENT

S.S.
2-77-11

I visited the GOTT with Geoff King January 29, 1981 for the purpose of reviewing main engine performance at season end, much in the manner we had visited last year. Our visit to the vessel was made in preparation for a meeting requested by Ralph Bertz where he and his staff wished to discuss engine component problems experienced with the plant during the last season. Ralph, with Dick Erickson's support, felt it mandatory we get together because he felt very strongly that serious deficiencies remained with the main engine.

Attached is an agenda prepared by Bruce Liberty for our meeting. We met in a conference room provided by Advance Boiler. In attendance were the following:

Ralph Bertz, Chief Engineer, U.S. Steel Great Lakes Shipping
Bruce Liberty, Senior Mechanical Engineer, U.S. Steel
Ed Merry, Port Engineer, U.S. Steel
Bill Shuga, First Assistant Engineer, M/V GOTT
Lavern Peterson, Chief Engineer, M/V GOTT
Steve Schumacher, Customer Service Engineer, Transamerica Delaval
Geoff King, Manager of Customer Service, Transamerica Delaval
Dick Erickson, District Sales Manager, Transamerica Delaval
G. E. Trussell, Manager of Engineering, Transamerica Delaval

**Transamerica
Delaval**



MEMO

Transamerica Delaval Inc.
Engine and Compressor Division

INTER-OFFICE CORRESPONDENCE

Date: February 17, 1981

To: C. S. Mathews

From: G. E. Trussell

Subject: U.S. Steel

Page 2

Transamerica
Delaval



MEMO

Transamerica Delaval Inc.
Engine and Compressor Division

INTER-OFFICE CORRESPONDENCE

To: C. S. Mathews

Date: February 17, 1981

From: G. E. Trussell

Subject: U.S. Steel

Page 3

3. Following much discussion on the attributes of NALCO 2000 and NALCO 39L water treatments, it was resolved that NALCO 39L would be used next season in both the main engines. NALCO 39L exhibits less propensity for foaming than does NALCO 2000. Also, since two of the Caterpillar diesels foam with NALCO 2000, U.S. Steel will try NALCO 39L in the foaming engines to see if the foam can be eliminated. TDI Service will review its water treatment SIM recommendations and attempt to update the material to reflect improved knowledge in the treatment area. U.S. Steel will drain as much water as possible from the main engine cooling water systems and recharge with fresh treated water following any problem with cylinder head cracks to reduce the possibility of continued operation with combustion gas contaminated water. A specific sampling source (water pump discharge) will be used to take all samples for treatment analysis.
4. U.S. Steel has cut a purchase order for TDI to repair five cylinder heads returned for leak inspection. Two of the heads are stress relieved pickled heads exhibiting vertical cracks in the back wall of the exhaust port. I advised TDI may want to cut one of these heads up for the Foundry to assess the reason for these first-ever cracks. I will advise later. Geoff asked U.S. Steel if there was any interest in a sprayed-on ceramic coating applied to the fire deck and the exhaust port surfaces. Bertz and Liberty were interested and Geoff will follow up on this possibility.
5. Although it was necessary to rework all pistons to clean up the minor fretting at the crown skirt interface and the fourth ring groove, U.S. Steel felt it best to bring pistons to current dimensional standards. Also, studs formerly torqued to 250 ft. lbs. were replaced because of possibility of bending and twisting during installation. Future studs should give piston life performance since the seating

N93-S18E

#

N30-344E



G. King

File 7503

S.S. 3-4-81

To: Bvd Trussell *Just - you have all you need*
Date: out - 21/7/81

From: Harold Schilling *new on date 8/1 C.C. Just King 8/13/81*
Ken Kroft

Subject: M/V GTT 75039/40 Crack Cyl Heads

All 5 heads were water, Gas and air tested.
All Air + Gas Tests were OK.

✓ RMR 5814-76 N93-518E 2" Vertical crack in Ex. port
cast 11-20-79 5" up on back wall

✓ RMR 5814-78 N30-344E 2" Vertical crack in Ex. Port
cast 10/12/79 5 1/2" up on back wall

X RMR 5814-79 J29-138T 3/4" crack in Ex. port
cast 9/7/76 1/2" inside from seat

RMR 5814-80 J16-156D 2" crack across IN. seat
cast 1-3-79 + Tube leak.

RMR 5814-81 J65-273D No leaks.
cast 1-29-79

1. Cyl. head J65 does not leak - Suggest
stress relieving, pickling + water Test for
cracks

RECEIVED



To: Bud Trussell

Date: 1-21-81

From: Harold Schilling

Pg. 2

Subject: M/V GOTT

2. Ken Kropf says he requires Engineerings approval to weld N93, N30 and J16 heads.
- 3 Harold Helgetson is very concerned about the vertical crack and wants to cut up Head # N30-344E cast on 10-12-79
- 4 These cracks do not appear to be like our major head problem with deck cracks and circular cracks. Suggest grinding out all cracks and re-weld, also stress relieving + pickling.
5. I would like to witness the grinding of each head crack before welding to better judge repairable heads

Harold V. Schilling

DOCKETED
USNRC

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

83 AUG 23 A11:17

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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.

SUBPOENA DUCIS TECUM

To: Titan Navigation, Inc.
1 Allen Center, Suite 950
1200 Smith Street
Houston, Texas 77002

Attention: Joseph Molini, Vice President, or any other
officer or authorized representative of Titan
Navigation, Inc. or its subsidiary or affiliated
companies

You are hereby directed to produce for inspection and
copying the documents specified under Request 1 of the attached
"Application for Issuance of Subpoenas." These documents shall
be produced within 15 days of service of this subpoena at the
offices of Kirkpatrick, Lockhart, Hill, Christopher & Phillips,
1900 M Street, N.W., 8th Floor, Washington, D.C. 20036.

If you oppose this subpoena, you may move to quash or
modify in accordance with 10 CFR, Section 2.720(f).

Lawrence J. Brenner
Presiding Officer

August __, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD ⁸³ AUG 23 A11:17

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.

SUBPOENA DUCES TECUM

To: State of Alaska
Department of Transportation
Division of Marine Highway System
Pouch Road
Juneau, Alaska 99811

Attention: Martin Nussbaum or any other authorized
representative of the Department of Transporta-
tion, State of Alaska

You are hereby directed to produce for inspection and
copying the documents specified under Request 2 of the attached
"Application for Issuance of Subpoenas." These documents shall
be produced within 15 days of service of this subpoena at the
offices of Kirkpatrick, Lockhart, Hill, Christopher & Phillips,
1900 M Street, N.W., 8th Floor, Washington, D.C. 20036.

If you oppose this subpoena, you may move to quash or
modify in accordance with 10 CFR, Section 2.720(f).

Lawrence J. Brenner
Presiding Officer

August __, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD ⁸³ AUG 23 AM 11:17

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.

SUBPOENA DUCES TECUM

To: United States Steel Corporation
Lake Shipping Office
400 Missabe Building
Duluth, Minnesota 55802

Attention: Any officer or authorized representative
of United States Steel Corporation's Lake
Shipping Office

You are hereby directed to produce for inspection and
copying the documents specified under Request 3 of the attached
"Application for Issuance of Subpoenas." These documents
shall be produced within 15 days of service of this subpoena at
the offices of Kirkpatrick, Lockhart, Hill, Christopher & Phillips,
1900 M Street, N.W., 8th Floor, Washington, D.C. 20036.

If you oppose this subpoena, you may move to quash or
modify in accordance with 10 CFR, Section 2.720(f).

Lawrence J. Brenner
Presiding Officer

August __, 1983

DOCKETED
USNRC

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

'83 AUG 23 A11:17

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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 Suffolk County's "Application for Issuance of Subpoenas," "Subpoena Duces Tecum" to Titan Navigation, Inc., "Subpoena Duces Tecum" to the State of Alaska, and "Subpoena Duces Tecum" to United States Steel Corporation have been served to the following this 22nd day of August, 1983 by U.S. Mail, first class, except as otherwise indicated.

*Lawrence J. Brenner, Esq.
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Ralph Shapiro, Esq.
Cammer and Shapiro
9 East 40th Street
New York, New York 10016

*Dr. George A. Ferguson
Administrative Judge
Atomic Safety and Licensing Board
School of Engineering
Howard University
2300 6th Street, N.W.
Washington, D.C. 20059

Howard L. Blau, Esq.
217 Newbridge Road
Hicksville, New York 11801

**W. Taylor Reveley III, Esq.
Hunton & Williams
P.O. Box 1535
707 East Main Street
Richmond, Virginia 23212

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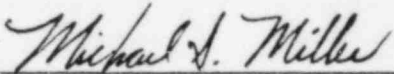
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