GLMS - 24

Roll 3 (PDF)
CENTER FOR ARCHIVAL COLLECTIONS

MARINE BOARD OF INVESTIGATION OF SINKING OF THE SS EDMUND FITZGERALD ON LAKE SUPERIOR 10 NOVEMBER 1975

START
ROLL 3
GL2-40

Coast Guard Investigation,

EDMUND FITZGERALD Sinking
The bulk freighter EDMUND FITZGERALD, owned by the Northwestern Mutual Life Insurance Company of Milwaukee, Wisconsin, and on long-term lease to the Oglebay Norton Company, Cleveland, Ohio, sank on November 10, 1975. She was lost on the east end of Lake Superior off Crisp Point nearly on the International Boundary Line with her entire crew of twenty-nine men and a cargo of taconite ore.

The United States Coast Guard Marine Board of Investigation convened on November 18, 1975. It was held in the auditorium on the 31st floor of the Federal Office Building, 1240 East Ninth Street, Cleveland, Ohio. The Board was composed of Rear Admiral Winfred W. Barrow (Chairman), Captain Adam S. Zabinski (member), Captain James A. Wilson (member), and Commander C. S. Loosmore (recorder). The hearings adjourned on December 13, 1975.

It should be stressed that the purpose of the inquiry was not to fix criminal or civil liabilities. Rather, it was called to determine the cause of the casualty, to the extent possible, to permit the taking of appropriate measures for future promotion of safety of life and property at sea.

The transcript of the investigation and related items were made available to the Center for Archival Collections, Bowling Green State University, for microfilming through the authority and forethought of Captain James A. Wilson, United States Coast Guard. His intent is to insure the availability of the document for future generations of scholars involved in Great Lakes studies.
be a stress on the ship.

Q. I will give you a hypothetical question: Let's say the Fitzgerald was making water in a particular ballast tank.

Could he have an indication of what tanks he was making water into?

A. He should definitely know what tanks, absolutely; yes.

Q. How could he know that?

A. The same way. If the captain is in the wheelhouse, he can call back to his engine house and ask the readings of the King gauges.

Q. Even though he couldn't go out and sound them manually?

A. You could sound them manually by going in the tunnels.

Q. Do you know if such a condition was possible on the Fitzgerald, the sounding from the --

A. I don't know; I have never been aboard the Fitzgerald.

Q. Is it normal to have the sounding pipes on the spar deck, or in the tunnel on the lake fleets?

A. We have sounding wells on the spar deck, but we also have a place where we can sound them from the tunnels.

Q. If there was such an arrangement on the Fitzgerald, he could have just gone in the tunnel and sounded the tanks manually, too?

A. I would assume, yes.

REAR ADMIRAL BARROW: Counselor?
MR. MURPHY: I have no questions.

EXAMINATION

By Cdr. Loosmore:

Q. Captain, I would like to call your attention to Exhibit 38 again, and during my questioning, we referred to an area shown on Exhibit 38 as McMillen Bank.

Would you examine that and tell me what the least sounding you find is on that?

A. Eight fathoms.

Q. And where is the 8?

A. Right in the middle of the circle that designates McMillen Bank?

Q. Is that a symbol 8?

A. Or is a G? Maybe it is a G. That is Gravel. It shows Gravel.

Q. I notice there is another one of those symbols, which is admittedly difficult to read, and it is either an 8 or a G below a symbol 30.

A. I believe that is a G also. It shows Gravel.

Q. And the G would indicate what?

A. Gravel. Here you have an M which represents Mud, and then there is another one down here which would be clay. I saw that somewhere.

I saw clay on here somewhere, which is represented by the letters CL.
Q. Just so the record is clear on this point, referring to Exhibit 30, the lake survey chart which you were using and referring to the 6-fathom shoal, which is what you testified you were talking about in the telephone conversation, does that shoal appear on Exhibit 38, the Canadian chart?

A. The only one that I believe it could be would be this McMillen Bank, which shows nine fathoms on this, and this one shows six.

That's the only one I believe it could be, because it is due south of this.

Q. Thank you, Captain.

You said I believe in an answer asked in a question by Capt. Zabinski that you cannot pump out the cargo hold with cargo aboard. Is that what you said?

A. Right.

Q. How do you cope with a heavy rainstorm when you are loading, Captain, or is that a problem?

A. No. Your ship is watertight when you put the hatch covers on.

You can't get any water in the ship, no matter what.

Q. Suppose you had a hatch cover off, for example, in the middle of a loading?

A. Many times when it rained or snowed, but that is negligible, as far as water is concerned. For one thing,
you would have to have 24 inches of rain in an hour
where it would make any effect.

It is very negligible to the effect that the amount
of moisture put in the cargo is small. The hatch openings
are not that big to start with.

Even if you took a considerable amount of water at
the loading dock, you are still only going to your marks;
and that water will eventually seep through your cargo,
and you may be able to pump a little bit off to where
your cargo suction holes are.

It just doesn't run through. If you lost a hatch cover
in a seaway, any kind of a seaway, you don't have very
long, because you will fill up and sink.

All the water in the cargo is going to go out.

Q. In your conversations with the Fitzgerald, was there
any mention of a hatch cover at all?

A. No, absolutely none.

Q. In your experience on Lake Superior, have you ever
passed fairly close to Caribou Island, a matter of three
or four miles?

A. Yes.

Q. What is the shape?

A. What is the shape?

Q. Is it a fairly steep clifty island?

A. No. It is a reasonable flat wooded island.
Q. The northern part of that, what is that? Is that rock or sand?
A. It is primarily all wooded right down to the parts I observed, a heavy rock formation, but not high; five or six foot boulders.
To me it all looked like fir, spruce or whatever.
It is not a high island; it is a flat island.
Q. Do you have any idea what the highest point on it is?
A. No.
Q. Would you estimate it?
A. I think maybe the lighthouse that is off the shore there would be the highest point.
Q. Can you see the light off the top from any place?
A. Sometimes coming down you can pick the light from intervals from the other side if it is clear.

EXAMINATION

By Capt. Zabinski:
Q. Captain, in the testimony you just gave, you made reference to McMillen Bank.
Would you look at the chart and measure off just generally how far it is from the north tip of Caribou to McMillen Bank?
A. How far?
Q. Yes.
A. It is about 7.2 miles to the extreme south part.
Q. In your previous testimony, you were indicating that
the Fitzgerald was three to four miles off passing over
the 6-fathom shoal?
A. No. It is a different place. I was referring
three to five miles off, when he was on the east side after
he passed down there. He was farther off than that on
the north end.
Q. How far was it?
A. I will give you a guess. I have a mark on the chart
that I just put on, No. 19, and that shows 4 1/4 miles,
and that is strictly a guess.
Q. That is about due north of Caribou?
A. North by east-north and northeast.
Q. But McMillen Bank is another three or four miles
above that point, isn't it?
A. That's right.
Q. So the mark you made on the chart is quite a bit
closer to McMillen Bank than Caribou?
A. Yes.
Q. So when you are referring to what that 6-fathom shoal
may be on 2310, your testimony actually indicates that
the vessel was much closer to Caribou than McMillen Bank
as depicted on this chart; is that right?
A. What are you referring to, Captain?
Q. Well, you indicate that the mark you made on the
chart where you thought the Fitzgerald was when it passed
north of Caribou was about four miles off; is that right?
A    Now that's north and northeast of it again.
It would be farther off if he would be north of it.
Q    Give me a point directly north of Caribou Island.
A    I can't give you anything specific.
Q    I understand your testimony that you have given us
your best recollection or estimate of where the vessel was.
I am now asking you for your best estimate of where the
Fitzgerald was when it was due north of Caribou Island.
A    There is a circle that I drew on here called No. 21,
which is what I drew for Cdr. Loosmore that is my idea
of where he would be.
   The extreme north of that, due north of that circle
that I drew is 6 1/4 miles.
   The southern corner of it is north -- the closest point
due north is 4.1 miles.
Q    Off Caribou?
A    Off the northeast tip of Caribou.
Q    And McMillen Bank is much further north than that?
A    Yes.
Q    Three or four miles?
A    Yes.

EXAMINATION

By Mr. Murphy:
Q. Captain, there has been so much discussion about this
distance off that I would like to ask you if I may about
a conversation that you and I had shortly after I first
met you at the Soo, and you recall that in the tape there
were some discussions by the Oglebay-Norton people waiting,
and you talked to me and to two other of our representatives.

Then I went aboard the ship with you. Do you recall
that, sir?

A. Yes, I do.

Q. During the course of the time that I was aboard
the ship, prior to that time you had made the comment
that, as you had observed the Fitzgerald, that she passed
close aboard the north tip of Caribou.

I was asking you if you would tell me more particularly
how close aboard the north tip of Caribou.

Do you recall that conversation?

A. Yes.

Q. Now, your chart showed that when you were off the north
tip of Caribou that the distance or your log shows a
distance of six miles, does it not?

A. No. That is when we were abeam of the northeast tip
on a 141 course.

Q. Yes, sir. But it says in your log "north tip of
Caribou, six miles off."

A. Abeam on a 141 course, which makes a big difference.
Q. All right, sir, when I pointed to that point in your log, when you and I were talking, I said to you, "Captain, with reference to that point in your log, how far off was the Fitz?" and my recollection of your answer was, "About half the distance that we were on."

Do you recall that, sir?

A. I don't recall it, but it very probably could be.

Q. You would not disagree with my recollection of that?

A. No, I wouldn't disagree with it.

MR. MURPHY: Thank you, sir.

I have no further questions.

REAR ADMIRAL BARROW: By the Board?

CDR. LOOSMORE: No, sir.

CAPT. ZABINSKI: Commander, I was wondering whether we could have the plastic plates of the storm that the captain had drawn for us?

REAR ADMIRAL BARROW: Off the record.

(Discussion off the record.)

REAR ADMIRAL BARROW: On the record.

EXAMINATION

By Capt. Zabinski:

Q. Do you recall, Captain, we had the exhibit where you drew, based on the weather data that you received from your weather reports?

A. Yes.
Q. You had drawn up a chart of the storm track and how
it was progressing, is that right?
A. Right.
Q. Now, I would like to ask you -- you presented two of
them, but could you tell us which one was the closest
plot to the time that you passed Michipicoten Island?
A. The last one we got was 1430. Now, those barometer
readings and all that came out at the 1:00 o'clock reading
and you get them an hour and a half later, so actually
your storm track has moved, the weather, the speed per mile
an hour, has moved that far.
Q. Now, could you give me an estimate, Captain, when
you say that you passed through the eye of the storm?
A. Yes, it would very definitely be in the logbook.
I can tell you exactly.
Q. Now, I would like to know, do you recall if you passed
in the northern hemisphere or the southern hemisphere,
or could you tell?
A. I am trying to remember.

MR. KEENEN: Do you need your log?

THE WITNESS: No, that wouldn't do
any good.

The way the wind reacted, I would assume that
we were -- we went through the low, but we were
on the west side of the low. It was a very defined,
small low center, almost a hurricane type plot.

By Capt. Zabinski:

Q. Well, did the storm pass from west to east?
A. It was going in a northeasterly direction.

Q. Northeasterly direction?
A. Now, were you in the north or south part of that storm track?
A. We were on the north of it to start with and progressed right through to the south side, as it passed over.

Q. But when you were in the end of West End, near Michipicoten --
A. At 1430 we got the wind shift just about Michipicoten, so it would be whenever we got the wind shift. It went around 300 degrees, and that would be where the eye had already passed it and the wind was coming from the westerly direction.

Q. Would you estimate for me, were you in the north of the western hemisphere of the storm center?
A. In relation to what, Captain? I don't understand.

Q. The storm was proceeding from a northeasterly direction, is that right?
A. Right.

Q. We have half of the storm laying to the north and half of the storm tracks laying to the south; is that right?
A. Right.
Q. I am asking you, were you to the north side or to the
south side, if you can estimate?
A. Well, I plotted the 1430 course, then it showed us
right in it.
Q. Right in the middle?
A. Yes. Michipicoten was included and so was Caribou
included in the low center.
Q. Would you say you were right on the storm track?
A. Yes.
Q. The way the storm was progressing?
A. Yes, we ran right through that, yes.

CAPT. ZABINSKI: Thank you.
REAR ADMRAL BARROW: Counselor?
MR. MURPHY: I think I have just one
more, please, sir.

Captain, was your ship on Eastern Standard Time?
THE WITNESS: Yes, it was.
MR. MURPHY: And the entries in
your logs are Eastern Standard Time?
THE WITNESS: All Eastern Standard
Time.
MR. MURPHY: Thank you. I have
no further questions.
REAR ADMRAL BARROW: By the Board, anything
further?

CDR. LOOSMORE: No, sir.

REAR ADMIRAL BARROW: Interested parties?

(No response.)

REAR ADMIRAL BARROW: Thank you very much, Captain.

I'm sorry to have to call you back, but we did want to amplify and clarify some of the testimony. Again, we caution you not to discuss your testimony with anyone other than counselor before the conclusion of this investigation.

Thank you, sir, and you are excused.

THE WITNESS: Okay.

(Witness excused.)

MR. KEENEN: Is he free to leave now, Admiral?

REAR ADMIRAL BARROW: Yes.

MR. KEENEN: Thank you.

REAR ADMIRAL BARROW: We will take a recess at this time. Off the record.

(Discussion off the record.)

REAR ADMIRAL BARROW: We will recess at this time and return at 2:15.

(At 1:15 p.m., a luncheon recess was had, to reconvene at 2:15 p.m.)
REAR ADMIRAL BARROW: Let the record show we reconvened at 2:24 p.m. Counsel for party in interest Oglebay-Norton present.

Cdr. Loosmore, continue.

CDR. LOOSMORE: The Board calls Seaman Gary Wigen, please.

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GARY WIGEN

was called as a witness and, having been first duly sworn, testified as follows:

EXAMINATION

By Cdr. Loosmore:

Q. Would you please state your name, service number and duty station?

A. My name is Gary Wigen, a seaman. My station is Grand Marais, Michigan, and my service number is 406817.

Q. Would you please repeat your duty station?

A. Grand Marais, Michigan.

Q. We are trying to make, or are required to make a verbatim record of these proceedings.

To assist us in that, I will have to ask you to speak as loudly and as clearly as you can and as comfortably and as slowly as you can, not only so that the Board can
hear you, but so that the reporters can hear you and
can get the information.

How long have you been in the Coast Guard?
A. Approximately three years and five months.
Q. How long have you been stationed at Grand Marais?
A. Approximately three years and four months.
Q. Have you ever been stationed anywhere else?
A. At Sault Ste. Marie for about a week.
Q. I have here a piece of paper with typewriting on it,
entitled "Statement Concerning the Sinking of the Edmund
Fitzgerald" dated 24 October 1975.

Do you recognize that?
A. Yes, sir, I do.
Q. Can you tell me what that is?
A. That is my statement that I sent to Sault Ste. Marie.
Q. At whose direction?
A. At the group commander's direction.
Q. According to that statement, Mr. Wigen, you were
standing on radio watch and had a conversation with the
Steamer Fitzgerald.

Would you describe that to us, please?
A. At 1530 I assumed watch, so that the boat crew could
move the 36-footer because of bad weather because of the
winds and everything.

Approximately 1639, I received a call from the
Edmund Fitzgerald and I asked them to switch to Channel 22. When he called back on Channel 22, he asked us if Whitefish Point radio beacon was inoperative. I told him to stand by because we didn't have the equipment here at Grand Marais to see if it was operating properly.

I got to talking to the Soo there on the teletype and they told me that as far as their equipment showed, Whitefish Point radio beacon was not operating. They also said that they were having a power failure and that when the power came back on, they would call me back and give me some more information on the beacon.

I called the Fitzgerald back and told them that as far as the Soo knew, that the beacon was not operating at that time. He said, "Okay, thanks. We were just wondering because we haven't been able to get it for a while," and then he said he would call us back and went back to Channel 16.

Q. What time was this conversation?
A. It was at 1639.
Q. What time zone did you keep that on?
Q. When you called him back, what channel did you call him on?
A. I called him back on Channel 22.
Q. Did you have any other conversations with the
Fitzgerald at all during your watch?

A. No, sir.

Q. How long were you on watch?

A. I assumed watch at 1530. The guy that had the watch came back at 1645.

Q. Did you stand watch any other times that day?

A. I stood the 1800 to 2400 watch.

Q. Do you keep a log on that radio watch?

A. Yes, sir; we do.

Q. Do you recognize this?

A. Yes, sir.

Q. Can you tell me what that is?

A. That is the radio log from November 10.

Q. And did you make an entry on that?

A. Yes, sir; I did.

Q. Concerning the Fitzgerald?

A. Yes, sir.

Q. Could you read that entry, please?

A. It says, "From Edmund Fitzgerald, requested to know if Whitefish Beacon is ops normal 16/22."

CDR. LOOSMORE: Sir, I have a copy of the radio log. It is on Form CG 2614A, Radiolog, USCG Station, Grand Marais, and I would request that it be marked as Exhibit 90 for identification.

REAR ADMIRAL BARROW: We will mark it as
Exhibit 90 for identification.

Cdr. Loosmore, may I see it?

CDR. LOOSMORE: Yes.

REAR ADMIRAL BARROW: Without objection,

Exhibit 90 for identification is admitted into evidence.

MR. MURPHY: No objection.

(Exhibit 90 was marked for identification, was received in evidence.)

By Cdr. Loosmore:

Q. Mr. Wigen, I think you said something about the Soo would call you back; is that correct?

A. Yes, sir.

Q. Did they call you back?

A. They didn't call me back while I was standing by for the other man.

I talked to the other man and he said that they didn't call him back either.

Q. Did they call you back on your later watch on the 18 to 24 hundred watch?

A. No, sir, they didn't.

Q. So as far as you know, then, they never did call back?

A. No, sir.

Q. Did you have any other conversations with any other ships in the area?
A. Yes, sir. I had a conversation with the Arthur M. Anderson. I got a weather obs from him.

Q. Did you have any additional discussion with the Arthur Anderson?

A. No, sir.

Q. Did you have any other conversations with the Fitzgerald?

A. No, sir.

Q. What channels do you monitor on your radio watch there?

A. We monitor Channel 16 FM and 2182 AM.

Q. While you were on watch either for the relief or later on after 1800, did you hear any conversations between the Fitzgerald and anyone else?

A. I thought I heard the Arthur M. Anderson calling the Fitzgerald and I think I remember him saying, "Go to Channel 8," or 6, and that is all that I remember.

Q. What channel would he be calling on?

A. He was calling on Channel 16.

Q. 16? Is it your practice to listen in to those conversations once the frequency shifted?

A. No, sir. We don't have either Channel 6 or 8 at the station. We heard the Anderson after he had called the Soo and said that he was worried about the Fitzgerald, that he had lost him on radar, and then I switched the channel back to 16.
Q. Did the Fitzgerald say where he was when he talked to you?
A. No, sir; he didn't.
Q. Did the person you were talking to identify himself other than -- well, at all?
A. No, sir, just that, "This is the Fitzgerald."
Q. When you called him back, did you call him by call sign?
A. I called him by the name of the vessel.
Q. How long have you been engaged in this kind of radio watch?
A. Every since I got to Grand Marais.
Q. A whole three years plus?
A. Yes, sir.

CDR. LOOMIS: That's all I have.
REAR ADimirAL BARROW: Capt. Wilson?
CAPT. WILSON: I have nothing.
REAR ADIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:
Q. What was the nature of this having to do with the 36-foot boat? Was this something unusual or was this a routine procedure to haul out the 36-footer?
A. I beg your pardon, sir?
Q. I say, you indicated that when you assumed the watch at 1530, the boat crew or someone was taking care of
going to the ship, the 36-foot boat?

A. Yes, sir.

Q. Was this an unusual occurrence or not?

A. No, sir, just during bad weather. They had to move it to better moorings.

Q. What was the weather like at 1530?

A. It was very windy. I believe we had wind blowing just about a steady 50 knots at the station.

Q. Do you have an anemometer at the station?

A. Yes, sir.

Q. Did you observe the anemometer?

A. I remember glancing at it.

Q. Do you recall what direction the wind may have been blowing from?

A. No, sir, I don't.

Q. And you recall it was around 50 knots?

A. Yes, sir.

Q. Was anyone present with you when you had this conversation or had this conversation with the Fitzgerald?

Was there anyone with you when you made that call to the Fitzgerald, if you recall?

A. No, sir; I don't think so. There may have been someone else in another room.

Q. And you were on the teletype, you indicated, and you called the Soo on the teletype?
A. Yes, sir.
Q. What did you ask the Soo?
A. I asked them if they could tell me if Whitefish Point radio beacon was operative and they said that as far as their equipment showed, that it was not operative at that time.
Q. Does the station at Grand Marais have any responsibility for taking care of radio beacons or the light at Whitefish Point to your knowledge?
A. No, sir. I believe the Soo has that responsibility.
Q. Do you have any responsibility for any aids in the area?
A. Yes, sir.
Q. What aids are they?
A. Ausable, we have Little Lake Harbor Light, and we have our own aids in our harbor, the harbor of refuge.
Q. Do you have any monitoring equipment that you can listen to any beacons in the vicinity?
A. No, sir; I believe the closest beacon to us is Marquette.
Q. I'm sorry, the closest beacon?
A. In Marquette.
Q. But my question is: Do you know whether there is any monitoring equipment at Grand Marais?
A. No, sir; I don't believe there is.

CAPT. ZABINSKI: That's all I have at
the moment.

EXAMINATION

By Rear Admiral Barrow:

Q In looking at the radio log, which is Exhibit 90, I see the incoming message 1639 from the Edmund Fitzgerald requesting to know if Whitefish Beacon is ops normal.

I don't see a notation for a response to the Fitzgerald.

A No, sir; we don't normally do that. When we log this stuff, usually what we do is just put from whomever it is.

That's it, and what the message was, and that is it. Usually that means that we heard him and answered him.

Q When would you have responded to them? You called him back at some time after 1639.

Could you recollect when you made that call?

A It was in the same minute, I am sure.

Q In the same minute?

A Yes, sir.

Q Did you have any inoperative equipment, VHF radio equipment during this time period?

A Yes, sir. Our high level was inoperative, our 16 monitor was inoperative, and our AN/URC 51 was inoperative.

Q What do you mean your high level?

A We have a high level antenna at Grand Marais, a Motorola; that was inoperative.
Q. Was this due to weather conditions or --
A. We believe it was caused by lightning.
Q. This did not affect your communications with the
Fitzgerald at the time?
A. No, sir. We have another radio, a small Triton that
we use.
Q. So your communications with the Fitzgerald were good
at all times that you talked to them?
A. Yes, sir.

REAR ADMIRAL BARROW: Mr. Murphy?
EXAMINATION

By Mr. Murphy:
Q. Mr. Wigen, may I see the statement which you referred to?
As I understand it, sir, you assumed the watch at 1530.
Do I have that correct?
A. Yes, sir.
Q. And that was because the watch-stander was called away
to assist in moving a 36-foot vessel; is that correct?
A. Yes, sir.
Q. Why was it that he was called away from his watch,
his station of duty, rather than having somebody like your-
self render that assistance; do you know?
A. Well, sir, he had the duty at that time, and I was
off, so they called him instead of me.
Normally he would have signed off on the teletype,
and the Soo would have assumed his watch, had our radio
been working, our high level, but he asked me to listen
to the radios, and I said I would.

Q. Was that because you were more experienced than he?
A. No, sir; I wouldn't say so.

He knew what was going on as far as the Comms Room
and the boat.

Q. I am sorry, I don't understand why he as the watch-
stander couldn't have stayed on his watch of duty and
have you, the non-watch-stander, render assistance.

Why was that?
A. Well, sir, we only have eight people at the station.
As soon as the workday is done, just the people who have
the duties stay aboard, which is not very many.

It is three people and one person with recall.

They had to move a boat, and it takes a crew of three
people.

Q. And you were not at that time a watch-stander then?
A. I am considered a watch-stander, but at that time
I was not standing a watch.

Q. Is there some requirement that the person who moved
the boat be a watch-stander, where there is no requirement
that the person who assumes the duty on the radio
would not be a watch-stander?

Would there be some reason why he would take that job
and you wouldn't?

A. No, sir. The only reason why I took it was because I was hanging around.

Q. Now, I don't understand radio equipment, Mr. Wigen. I would appreciate it if you would tell me a little bit about it, so I understand what was operating and what was not.

The Fitzgerald called you on FM; is that correct?

A. Yes, sir.

Q. All right. Would that have been the normal station that you would have expected any vessel to call, or I should say the normal radio on FM rather than AM?

A. Yes, sir; we use FM quite as bit more than AM, because of the reception.

Q. Do you have any idea how far away the Fitzgerald was at that time?

A. No, sir, I have no idea.

Q. How far is it in distance, if you know, from Grand Marais to Caribou Island?

A. I have no idea on that at all.

Q. Michipicoten, do you know how far it is from Michipicoten?

A. No, sir.

Q. Based on your three years' experience there at Grand Marais, how far away have you been able to communicate
with vessels, communicate well with vessels on FM, just
over what distance has it been your experience?
A. I believe the furthest that I have talked to a
vessel was on Lake Michigan. I have no idea what the
miles are on that.
Q. Now, going back to the equipment, you mentioned "the
high level inoperative"; now, did that refer to simply an
antenna and the height of the antenna or did that refer to
an antenna with respect to some type of radio?
A. Well, our Motorola, we call it the high level.
We have a fairly high antenna at Grand Marais and it is
hooked into this Motorola and we just call that the high
level.
Q. Is that the equipment usually used, customarily used
when it is operative?
A. About the only time it is used is when we can't
raise a boat with our Triton.
Q. Does that mean then that that has greater range
or greater power, the high level?
A. Yes, sir.
Q. Do you know how much greater in terms of miles of
distance?
A. No, sir, I have no idea.
Q. If the high level had not been operative, would that
have been the one that you would have been using at the
time?

A. No, sir, if we could get them with the Triton, that is what we usually use.

Q. What happens when a vessel is trying to reach you, if you have your high level operating, is it more likely you would be able to receive them than it is if you are not operating?

A. I am not sure I understand.

Q. When you are trying to reach a vessel and you have difficulty reaching it with the Motorola, then you would use the high level, is that right?

A. No, sir. The Motorola is the high level.

Q. I am sorry. The Triton?

A. Yes, the smaller one.

Q. You see, I know very little about it. I don't mean to be confusing you.

I am trying to see if I can understand or maybe you can help me to understand, because there is some testimony in this record that the Fitzgerald tried to reach Grand Marais station.

Are you aware of that testimony?

Do you know that?

A. No, sir.

Q. There was some testimony given that one of the vessels, I think it was the Anderson, attempted to reach Grand
Marais and the question was whether or not she did or did not reach Grand Marais.

I will withdraw that. There has been some testimony from the Anderson that she heard the Fitz trying to reach Grand Marais but she didn't listen in, but we don't know whether or not there was any response. But according to your log, there is no indication of a prior call from the Fitz prior to the 1639; is that true?

A. That is true.

Q. So that it would appear that she, the Fitz, did not reach Grand Marais or at least we haven't been able to determine that she did.

Now, can you give me any reason why that you know of that she would not have been able to reach your station, since in fact her radio apparently was working all right and you were able to receive her all right at a later date, at a later time?

Could you give me any reason at all?

A. No, sir, none that I can think of.

Q. Now, you said that you assumed the watch at 1530. May I see the log, please?

(Handing to counsel.)

Can you tell me from your log who was on watch prior to that time?

A. It was S. N. McFarland on watch.
Q. What watch hours did he stand, do you know? Can you tell us?

A. He stood the 1200 to 1800 watch.

Q. So he was on watch then when you relieved him at 1530?

A. Yes, sir.

Q. And was he actually at the controls of the radio equipment at the time?

A. At the time the Fitzgerald sank or called?

Q. At the time you relieved him.

A. Yes, he was. Everybody stands their watch right in the radio room.

Q. Was there any period in between this relief period when no one would have heard whether there could have been a call come in and would not have been received or heard?

A. No, sir.

Q. In other words, you were at the equipment together, and he was there, and you relieved him and then you stayed and he left; is that right?

A. Yes, sir.

Q. You mentioned you talked to the Fitzgerald and the response was a quote, and then you quoted the response.

A. Yes, sir.

Q. Now, how did it happen that you were able to quote that, sir?
A. I guess it just stuck in my mind, that's all.

Q. Was that contained in the report that you made through the Soo?

A. Yes, sir.

Q. And you wrote that report 14 days after the accident, if it is dated November 24th, is that right?

A. Yes, sir.

Q. And that was -- was that the first time you had expressed that quotation to anyone or had you previously stated that to someone or written it?

A. Well, after we heard that the Fitzgerald might have sunk, everybody at the station had been talking about it and I was telling them that I had just talked to them just before people started getting worried about it, and I told them that they didn't sound like they was worried at all about anything.

Everybody sounded like they were in real good spirits.

Q. There was nothing in the tone of the voice with whom you spoke that conveyed anything but the normal type of communication?

A. Yes, sir.

Q. Do you know with whom you spoke?

A. No, sir, I don't.

Q. Is there some type of recording equipment or taping
equipment maintained at your station?
A. No, sir.
Q. The only record of calls received or sent out is in the log, is that correct?
A. Yes, sir.
Q. You also mentioned in addition to your high level being inoperative, a 16, and what was that, the 16 monitor?
A. Yes, sir. That is the Channel 16 monitor. It is part of the Motorola equipment.

It is part of the high level. It just monitors one channel.
Q. Of course, Channel 16 on FM is the open channel; is it not?
A. Yes. It is a hailing frequency.
Q. An AM frequency?
A. A hailing frequency.
Q. What other equipment then would be monitoring that channel when this equipment was inoperative?
A. Our Triton would be on Channel 16.
Q. And was it operating in good order at that time?
A. Yes, sir.
Q. Now, you also said your AM 81 was inoperative. What did that mean?
A. I believe that was AM 851. That is the AM we have.
Q. And that is the open channel on AM radio?
A: No, sir. That is a type of radio. The frequency that we monitor on AM is 2182.

Q: And was that equipment operating?

A: No, sir; it was inoperative at that time.

Q: Then there was no equipment operative which could receive a call on AM; is that correct?

A: That's correct.

Q: And there was one piece of equipment inoperative, which would receive a call on FM?

A: I take that back, sir. On our AM we have a monitor on that, too, that was operative.

Q: I see. And if that was operative and the Fitzgerald had attempted to reach your station on AM, would you have expected to have been able to receive that call?

A: Yes, sir, we would have.

Q: Considering the weather conditions, do you have any explanation as to why, if the Fitzgerald tried to reach your station, that she was unable to do so?

A: No, sir; none that I can think of.

I have no idea why she could not, if she did call.

Q: Have you had, in the three years' experience that you have been there, reports to the effect that there have been attempts by vessels to reach your station and those vessels have been unsuccessful?

A: No, sir, not to my knowledge.
Q. This would be the first instance that it came to your
attention where it was reported that a vessel had
attempted to reach you and had not been able to do so?
A. Yes, sir.

MR. MURPHY: I have no further
questions.

REAR ADMIRAL BARROW: Anything by the Board?

EXAMINATION

By Capt. Zabinski:

Q. With respect to your AN/URC 51, you indicated that
was inoperative. When did that become inoperative, if
you know?
A. I don't remember. I believe it was quite a few days
before that. I believe they actually took the unit out to
be repaired.

I believe that was struck by lightning at the same
time our FM went out.

Q. And when did the FM high level go out, if you know?
A. No, sir; I don't know.

Q. Did it go out the same day or some other day?
A. I don't believe it was the same day. It would show
in our radio log. If I had them to look back, I would
know.

Q. Does it show in this radio log?
A. No, sir. It just shows from the first time that we
noticed it was out, and we just keep entering that it was inoperative.

Q. The radio log that you presented here was for that period of time. Is that the radio log you are talking about?
A. Yes, sir, it is one of this type. What I mean is that the same day we would have noticed that it was out, we would have entered that we noticed that the high level or the AN/URC 51 was inoperative, and we would have entered it then.

We would have just kept entering it; that it was still inoperative or inoperative.

Q. Let me just get close to you here. This is the radio log which is marked as Exhibit 90.
A. It starts at 1900 Romeo and it ends at 1900 the next day.

It ends, well, it starts and ends at 2400 Greenwich mean time.

Q. All right. So this first entry here 19 to 24 hundred EST, would that have been on the 9th or the 10th?
A. That would have been on the 9th.

Q. And would you read that entry and what it says?

Who was on watch?
A. It says F. A. Archer was on watch.

"AN/URC 51, high level, 16 monitor, inop, no traffic
pends."

Q. Was this the entry you were referring to that you would carry on from watch to watch as to what equipment was inoperative?
A. Yes.

Q. And reading this entry the AN/URC 51, the high level and the 16 monitor, they were inoperative; is that correct, those three pieces of equipment?
A. Yes, sir.

Q. And on the entry 12 to 18 hundred, it has Seaman McFarland; is that correct?
A. Yes.

Q. What equipment was inoperative at that time?
A. AN/URC 51 inoperative, Motorola inoperative.

On that there, he was including the 16 monitor, and what we call the high level.

Q. Although that does not show there, but you believe that's what the entry means?
A. Yes, sir.

Q. When did you go off watch on the 10th?
A. He got back to the station at 1645. That's when I got off watch, as soon as he came back.

Q. You logged out on this sheet on the radio log as being relieved at 1645?
A. No, sir. That was because I didn't think I was going
to be standing by, but for a couple of minutes.

He went down there originally to make a boat check, and the chief came down and decided to move the boat, so they stayed down there.

That is why I did not sign on or off.

Q. And you indicated that the conversations that you had with the Fitzgerald, you used the Triton gear?

A. Yes, sir.

Q. And what channels does the Triton gear have?

A. Channels 16, 12, 22, 81 and 23.

Q. 22, and what came after that?

A. 22, 23, 81, and 12.

Q. 16, 12, 22, 23 and 81?

A. Yes, sir.

Q. Now, what channel were you monitoring?

A. We were monitoring Channel 16.

Q. But as I understood your testimony, you indicated that you had another monitor on a station which was tuned to Channel 16; is that correct?

A. Yes, sir, we did; but that was inoperative. That was part of the Motorola gear.

On the Triton, we only had one speaker.

Q. Is it your testimony then that the Triton was the only piece of equipment, radio equipment that was operative at the station?
A. No, sir; on our AM there, we did have a monitor that
was monitoring 2182 AM.

Q. And what radio equipment was that connected to?
A. It was just a monitor. It was set above the AM radio,
the AN/URC 51.

Q. Did you hear any traffic on the AM 2182?
A. Yes, sir. I heard the Anderson trying to call the
Fitzgerald, but I didn't hear any reply.

Q. What time was that?
A. Gee, I would say approximately 7:00 o'clock. I
don't really know for sure. I just heard it, and I really
didn't notice the time.

Q. That was on 2182 AM?
A. Yes, sir.

Q. And that would have been about seven o'clock?
A. I would think so, about that.

Q. You indicated previously that you went off watch or
were relieved again at 1645?
A. Yes, sir.

Q. Were you still in the radio room for 15 more minutes
after you were relieved?
A. Yes, sir.

Q. Who else was in the radio room with you between 1645
and 1700?
A. That period N. McFarland was in the radio room.
Q. When did you leave the radio room?

A. I think I just stayed in there the rest of the time. Oh, I was either in there or talking to McFarland or else I was in the TV room watching TV. I was just going back and forth.

Q. When did you first know that there was any difficulty out in Lake Superior?

A. I couldn't say for certain, for sure.

Q. Would you think back and let us know when you first knew that anything was wrong on Lake Superior that night, on the 10th?

A. I believe that it was after I came on watch again, after I relieved McFarland for my watch.

Q. That would have been at what time?

A. 1800.

Q. What was the nature, how did you know something was wrong then?

A. I heard the Anderson calling either the Group Soo or else Group Control, I don't know which one exactly, and he told them that he was concerned about the Fitzgerald. He said he was extremely concerned, that he didn't know what had happened but that he had lost the radio and radar with him, that he couldn't get in touch with them.

REAR ADMIRAL BARROW: Off the record momentarily.
(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

By Capt. Zabinski:

Q. I just want to clean up the time a bit.

I may have added to the confusion a little bit, but you indicated that you came on -- what time did you first come on watch for the relief or when you assumed the watch?

A. When I assumed my watch or --

Q. When you assumed the watch for the boat crew or for McFarland to go out and help with the boat.

A. That was 1530.

Q. 1530. And you stayed on until 1645?

A. Yes, sir.

Q. Is that correct?

A. Yes, sir.

Q. And you stayed in the radio room, if I understand your testimony, until about 1700?

A. About that.

Q. What time is that?

A. That is five o'clock. I stayed in the radio room approximately until around seven o'clock -- in and out is what I mean.

Q. Well, I think this is -- why don't we go into what time you assumed the watch. Was that 3:30 in the afternoon?
A. Pardon me?
Q. What time did you assume the watch?
A. I'm getting all confused here now. About 1700, you're right, sir.
Q. Take your time now and reconstruct it so we can clear the record up.
A. Yes, sir.
Q. Whichever time is most convenient, do you want to use 1530 or do you want to use Standard Time?
A. He got back at 1645.
Q. That is at what? 4:45?
A. Yes, sir.
I stayed in the radio room just talking to him and everything and I had been going in and out until around 1800. That's when I got back in the radio room and that is when I assumed my watch.
Q. That's at 6:00 o'clock in the evening?
A. Yes, sir.
Q. 1800 is 6:00 p.m.?
A. Yes, sir.
Q. And is that the time that you heard the communications with the Fitzgerald -- or between the Anderson trying to reach the Soo?
A. Like I say, the time on that isn't really all that clear. I don't know if it was at around 1700 or around 1900.
I got a weather obs here at 1854 from the Anderson. It could have been just right after that that he tried to call the Fitzgerald.

Q: So it may have been 1900 that the Anderson was trying to reach the Fitzgerald on 2182 AM?

A: Yes, sir.

Q: You were off watch for how long?

A: I was off watch at 1645 and I came back at 1800, so about an hour — well, about an hour and 15 minutes.

Q: And you were on watch for about an hour before you heard or got the weather obs from the Anderson, is that correct?

A: Yes, sir, just about an hour.

Q: Did you receive any other communications from the Fitzgerald when you came back on watch?

A: No, sir, not at all.

Q: Did you hear the Fitzgerald talking to anyone?

A: After I came back on watch?

Q: Yes.

A: I don't really know. You hear so much garbage coming across the radio that I could have heard him and just not noticed it, I don't know. But there was a lot of stuff happening that night, like I don't know, the boat and everything, that we had to go down and keep checking on the boat and everything. So it is kind of jumbled.
I couldn't really say for sure.

Q. In other words, is it your testimony that while you were standing on radio watch there were many communications going on, on a channel that you were not paying particular attention to; is that a fair statement?

A. Unless it concerns our unit.

Q. Unless they call Coast Guard Grand Marais, then your ears perk up and your respond. Is that the way it works?

A. Yes, sir.

Q. Do you know if any May Day was sent out?

A. No, sir, I would have heard that, too.

Q. And would you have logged that if it came through?

A. Yes, sir.

Q. Do you recall how many times the Anderson may have tried to reach the Fitzgerald on 2182, sir? Once, twice?

A. I believe it was about three times. I know he tried several times on FM.

Q. Channel 16?

A. Yes, sir. I know he asked him once. I don't remember what time it was. He asked him once if he could come up on his emergency gear and I didn't hear any response.

Q. That was the Anderson asking the Fitzgerald?

A. Yes, sir.

Q. What is emergency gear, if you know?
I have no idea.

But you were monitoring both Channels 16 and 2182?

Yes, sir.

CAPT. ZABINSKI: That's all I have, Admiral.

REAR ADMIRAL BARROW: Counsel?

MR. MURPHY: Yes, sir.

EXAMINATION

By Mr. Murphy:

There are indications that there was a radio telephone communication between the Fitzgerald and the Anderson at approximately 1540, which would have been 10 minutes after you came on watch, is that correct?

Yes, sir.

And you heard nothing of any such communication, is that right?

I don't remember anything. Like I say, I don't really pay any attention unless it concerns our unit or a May Day or something of that nature.

What you are saying is, it may have come over your speaker but might not have called your attention to it?

Right.

If it were a call where the Fitzgerald was reporting that she was having some difficulty, do you think it is the kind of call that you have heard, even though it is
not a May Day, if the Fitzgerald were telling the Anderson, for instance, that she had lost some fence rails and had a list; would that have been a call that you think you would have heard?

A. Yes, sir. I think I would have. I really can't say until the situation comes up.

Q. But you didn't hear any such call?

A. No, sir, I didn't.

Q. And you didn't, as I understand your testimony, you didn't hear any call between the Fitzgerald and any other vessel, say, particularly around 1900 or about that time?

A. Well, around 1900 the Anderson called our unit at 1854.

Q. I was speaking of a call between the Fitzgerald and I believe a vessel, a saltwater vessel called the Avafortse. Does that mean anything to you? Did you hear any such call as that?

A. No, sir; I don't remember.

Q. You don't recall hearing any such conversation between the Fitzgerald with any other vessel then, is that right?

A. No, sir, I don't.

Q. What was the period of time of obs received from the Anderson at 1854?

A. That was just a weather report from the Anderson
that we in turn relayed to the Soo and I believe that they
sent it to Cleveland, Chicago and Detroit.
Q. Do you just make a notation that a weather observation
was received, or do you make a notation of what the
contents of the operation was?
A. The message that we send, we keep. We keep a copy of
that.
Q. Do you have a copy of that with you?
A. No, sir; I don't. That's at the station at Grand
Marais.
Q. Do you have any recollection of what the contents were?
A. It is all coded, sir. We don't have any way of
knowing or figuring out what it is.
Q. You merely transmit it on in code; is that correct?
A. Yes, sir.

MR. MURPHY: I have no further
questions.

REAR ADMIRAL BARROW: Anything by the Board?
Cdr. Loosmore?

CDR. LOOSMORE: No, sir.

REAR ADMIRAL BARROW: Interested parties?
(No response.)

REAR ADMIRAL BARROW: Thank you very much.

You are cautioned not to discuss your testimony
with anyone other than counsel until the conclusion
of the investigation. Thank you.

(Witness excused.)

(Recess had.)

REAR ADMIRAL BARROW: Let the record show we reconvened at 3:29. Counsel for Party in Interest Oglebay-Norton present.

CDR. LOOSMORE: The Board calls

Mr. Richard Orgel.

REAR ADMIRAL BARROW: Mr. Mann, for the record, you are assisting this witness, and you are aware of his rights and privileges?

MR. MANN: Yes.

REAR ADMIRAL BARROW: Will you identify yourself, please?

MR. MANN: Ned Mann, Barnett & Mann, and I am here to assist Mr. Orgel in his testimony.
RICHARD ORGEL

a witness called for examination, being first duly sworn,
testified as follows:

EXAMINATION

By Cdr. Loosmore:

Q. Mr. Orgel, would you please state your name, address
and occupation?

A. Richard Orgel, 2951 Hickory Street, Erie, Michigan;
and I am a seaman.

Q. Do you hold a Coast Guard license or document?

A. Yes, sir. I have a master and first-class pilot,
Great Lakes, and a towing license and coast-wise.

Q. How long have you held that license?

A. I have had a master's license about 10 years, and
it must be 25 years for the pilot.

Q. When was your Great Lakes license last issued?

A. I am up for renewal in March of '76 so that would be
five years back.

Q. Do you have that license with you?

A. No, sir, I do not.

Q. Do you recall where it was issued?

A. In Toledo, Ohio.

Q. And who are you presently employed by?

A. McAllister Towing Brothers Company, Philadelphia.

Q. Does that involve service on the Great Lakes?
A. Yes, sir. There is a little bit of service on that tug, yes.
Q. Could you briefly summarize your Great Lakes experience for us?
A. Well, I must have approximately 23 years on the Great Lakes.
Q. In what capacity?
A. Most of that on the license.
Q. Did you ever sail on the Fitzgerald?
A. Yes, sir, I did.
Q. When was the last time you sailed on the Fitzgerald?
A. I am not sure of the dates. I believe I was on there from about the 15th of October to the 15th of November of '72.
Q. And had you sailed it prior to that?
A. On the Fitzgerald?
Q. Yes.
A. No. That was the only time I was ever a crew member on the Fitzgerald.
Q. What were your duties during that time?
A. I was a third mate.
Q. Excuse me?
A. A third mate.
Q. Was that a watch-standing assignment?
A. Yes, sir.
Q. Did that involve a regular dealing with the captain?
A. Oh, yes.
Q. And who was the captain at that time?
A. Ernest McSorley.
Q. I would like to ask you a few questions about Capt. McSorley to get some idea of what your impressions of him were.

Was Capt. McSorley the kind of master who talked over problems or potential problems with his mates?
A. I think he probably was. I was only there 30 days, and it was only on a release basis.

So I don't think he discussed too much with me, but I think he probably was the type of captain who would do that.

Q. Do you think he was the kind of captain who would talk over a potential problem with the master of another ship in the vicinity?
A. I expect so, if it pertained to the safety of his vessel or anyone else.

Q. Would you describe him generally as a quiet or talkative sort of person?
A. I think he was more of a quiet man. I wouldn't describe him as talkative, no.

Q. Would you describe him as approachable?
A. Oh, yes, entirely.
Q. What was your impression of him as a seaman? Was he a very, very cautious man, or was he a rather uncaucous man, or how would you describe that?

A. Well, I think he certainly did display all due caution all the time I was watching him, being with him, that he did this.

Q. Did he ever express to you when you were with him any feelings about the Fitzgerald?

A. Yes, sir.

Q. Could you tell us about those?

A. Well, on one occasion he told me that the action of the vessel, the hull, in the seaway sometimes scared him.

Q. Was that action happening at the time?

A. Yes, sir.

Q. Could you describe what kind of action that was?

A. We were in the heavy water if I remember. It was north-northeasterly weather. We were coming out of Whitefish going up toward the north shore for shelter.

Q. What action was the vessel doing?

A. Well, it was of gale force winds, what I would call a moderate sea, perhaps 10 or 12 foot, pretty near stem on. We altered course, altered speed from time to time trying to ease the working of the vessel.

Q. Was the vessel noticeably working at the time?

A. Yes, definitely.
Q: How could you notice that?
A: Just by looking aft along the deck of the vessel.
There was quite a bit of action there.
Q: What do you mean by action?
A: Well, she bends and springs considerably.
Q: In springing, the term has been used several times in this testimony.
What is a spring? You said she springs.
A: Well, when you are standing forward and looking aft, it would remind you of a diving board just after somebody jumped off; the board, the diving board of a swimming pool.
She did this whipply.
Q: Where is that?
A: Well, it seems to be when you are standing forward, it looks like it is starting around midship, so then going to the stern, and then when you are standing aft and looking forward, it sometimes would appear like the forward end is doing it and just where all this is taking place, I just don't know. It's along the length of her somewhere.
It seems to be much more noticeable, at least this was my experience, when you are standing forward and looking aft. It seems that when the sea piles up under her stern and then falls away, she just doesn't drop down into the trough. The stern doesn't drop into the trough
like you would expect it. It whips is the best word, or springs is the best way I could describe it.

Q. Is that different from bending? You said she bends and springs.

A. Are those different things?

A. The difference between the bending and springing is, I would say, that the springing is the rapid bending; it does it fast. It isn't -- there is a difference between a vessel bending when the sea is rolling underneath it and this action that I am trying to describe to you is -- this is a fast thing. I mean, it would probably occur in a matter of two or three seconds and then it will do it again in two or three seconds, I would say.

Q. Does the vessel shudder at the same time this happens?

A. Yes, it shudders.

Q. And when Capt. McSorley said that the vessel -- what was the word?

A. He said that this sometimes scared him.

Q. Were both bending and springing taking place at that time?

A. Yes, I would say so. This springing was quite noticeable at that time.

Q. Was this said in a manner of jest?

A. No, it wasn't jest. I asked him about -- I was working back out on the deck and I asked him if it was
possible that this action could actually cause the hatch
clamps to come off.

CDR. LOOSMORE: Off the record a moment.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

By Cdr. Loosmore:

Q. Continue.

A. He said no, he had never seen that happen and I remarked
to him that there was sometimes a lot of action back there,
and he was walking away. He was leaving the chart room
and we were standing back in the pilot house.

He was going toward his room and as he walked away,
he said, "Oh, this thing, this sometimes scares me."

Q. When this was taking place, did you in maneuvering
the vessel, or did you maneuver the vessel in order to try
to change this action?

A. The captin told me that before this, before he had
left the wheelhouse, when he first came up, he was there
perhaps 45 minutes, and he told me that if she started
working too much that I should alter course or call him
and he said he would be laying on top of his bed. He
wasn't going to dress or anything, and if I had any problems
or I thought it was working too much, I should call him.

Q. Had you called him; is that why he was there?

A. No, I didn't call him. I think he came up, I think,
to get a weather synopsis that he knew I was just about
finished getting, and I think he come up for the purpose
of looking at that and then he had previously or later in
the watch, he had altered speed, changed the revolutions
up and down.

I don't know just what he did about altering speed
because on those lakers, when they alter speed, they
don't usually use a telegraph. They call the engine room
and up or down so many revolutions. They don't use
the telegraph unless there is going to be a considerable
amount of change in speed.

We tried a couple of courses and tried to pick a
course that she was riding the best on.

Q You said that you were going or coming out of
Whitefish and going north.

A Well, we were bound for the port of Silver Bay, but
we didn't take a direct course, the usual direct course,
because of the weather.

The captain wanted to go north to get shelter from
the north shore.

Q I realize this has been some time, but would it be
possible that you recall the course well enough to recall
it on the chart?

A Well, when I come on watch, I believe we were passing
Parisienne Island and I think we were steering, probably,
10 degrees or it may have been 350 degrees, I don't know, but in a general northerly course.

REAR ADMIRAL BARROW: I think it has been so very long since this witness was there that trying to lay it out other than general directions, would not be, I think, too useful.

Off the record momentarily.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

By Cdr. Loosmore:

Q. Do you recall where on that particular trip you passed with relation to Caribou Island?

A. No, because by the time we got up to Caribou, I was off watch.

Q. Did Capt. McSorley discuss Caribou or that part of the transit with you?

A. No, Capt. McSorley was up. If he wasn't in the wheelhouse, he was up, on most of my watch.

Q. Was he particularly concerned about that part of the transit going north or did he express that to you?

A. No, he didn't say anything to me. However, he didn't go to bed, so I just assumed that he had some concern. Usually when we go out in the open lake like this, the captain will go to bed.

Q. I believe you said that you were on the Fitzgerald for a
month. Were you ever involved in the loading of the vessel?

A. Oh, I would look to see to the loading of the vessel
on my watch under the supervision of the chief mate, first
mate.

Q. Who was that, do you recall?

A. That was John McCarthy.

Q. You say on your watch?

A. Yes, I was on watch from 0800 to 12 -- 2000 to 2400,
that is the standard third mate's watch.

Q. You stood those watches even while at the loading
dock or at the unloading dock?

A. Yes.

Q. Did you get instructions from anyone or were there
instructions available on the procedures to be used and
let us talk about loading for a minute.

Is there any procedure to be used on the loading dock?

A. Yes. The mate would give me instructions, right
down to the last detail, what I should look after while
I was on watch.

Q. Were they verbal or written?

A. Some were written and some were verbal.

For example, he would write down the tonnage that
was supposed to go into each hold, each hatch, and then
further instructions would be verbal.

Q. Did you ever load with a chute dock at any time that
you were aboard?
A. I can’t recall. I don’t think so. I think the only places we loaded when I was there was from a belt.
Q. Do you recall ever going anywhere other than Silver Bay?
A. I don’t recall going anywhere other than Silver Bay on that ship.
Q. And how would you see to it that a certain amount of tonnage got into a particular hatch?
A. Well, I usually judge it by the time the belt runs, because I was not experienced in loading these bulk freighters. McCarthy, the mate, would tell me about how high the oil or the ore would be piled up in the hold, and I had to be sure that the ballast was coming out in good order and that the loading was going on forward and aft as he laid it out for me.
Q. Were there instructions as to which tank to pump and when to pump it?
A. Yes.
Q. As far as the ballasting was concerned?
A. Yes. He gave me instructions to that.
Q. How did you determine when to pump it? Was it a certain time?
A. Well, at a certain stage of the loading operation, you would start ballasting different tanks.
Q. Before the loading all started, did you discuss this
with the mate?

A. Oh, yes. He would come out on deck and he would give me my instructions.

Q. Did you know whether or not he had a loading manual or any written instructions that he used?

A. Oh, yes. I know he had a book with a record of all the loads that he himself had ever put into her.

He would refer to that, I suppose, depending on the draft that was required, the fuel and so forth.

I think the fuel probably was figured in.

Q. How about draft? Did you mention draft?

A. The draft might vary a little bit from time to time.

Q. Was that one of your duties to check the draft?

A. When the vessel was nearly loaded, the first mate would come out and see to the finishing off himself, and the third mate, myself, or the second mate, I guess, would assist him, that is, going on the dock and reading the draft marks.

Q. How about while the vessel was being loaded, say, an hour into the loading? Were the drafts important then?

A. Oh, yes. All through the loading process you had to be sure that the ballast was coming out the way it should and, of course, one belt might stop for one reason or another, a breakdown, in which case you might have to stop.

The second belt that was still working or moving
fore or aft, depending on what the situation was, apparently,
they did not want to stress the vessel, you know, by
loading one place too heavy.

Q. And what would you check for; would you check the
draft?
A. Yes. I would check the draft as I was instructed by
the first mate to see that deballasting and loading was
going as it should, as he instructed me that it should go.

Q. Did he tell you what draft to look for then?
A. Yes.

Q. How did that work; did he say that when you get hatch
number so and so full you will be at such and such a draft?
A. Yes. He would say when the loading belt goes, for
example, from No. 10 to No. 8 hatch and the forward belt
is up at No. 1, then your draft should be approximately
10 and so and so after and approximately so and so forward.

Q. And who checked the draft?
A. I would.

Q. Would you check them at midship, too?
A. Yes.

Q. And did he give you the midship numbers as well?
A. Yes.

Q. Do you recall at the final draft whether there was any
hog or sag?
A. This McCarthy was very careful about that. I can't
recall ever seeing anything sagging or hogging or anything like that.

Q Was there any drag?
A Oh, yes. There was not much though. I guess the idea was to carry all the ore you could.

You are going to have a better load on an even keel There would not be much drag.

Q About how much drag would you be talking about, a foot or two feet?
A Oh, no. I am thinking maybe in terms of an inch or two. 

Q Did the vessel ever ground at the loading dock while you were loading?
A Not to my knowledge it did not.

Q Were you concerned with the tank vents or any other vents during the loading operation?
A The ballast tanks, of course, would have to be vented in order to do any pumping on them.

Q Well, yes, but weren't they already vented?
A If I remember correctly, the routine there was to leave the vents open when the vessel was in ballast, light of cargo, and they have them closed when she was in a loading condition.

Q When did that change take place?
A Well, when the vessel was loaded and preparing to go to sea, they would close them.
Q. And who would do that?
A. I recall a seaman, his job was what they call a deckwatch. It seems to me that he was the one that looked after that. He had been on the ship a long time and was regarded highly for his responsibility.

Of course, the mates also would check, but the work was actually performed, I believe, by the deckwatch man.

Q. And this deckwatch man, then, he made sure they were all closed?
A. Yes. He would get his instructions probably either from Mr. McCarthy or Capt. McSorley.

He would carry it out as he was directed.

Q. Did he ever report back to you?
A. Yes. He would sound the boat, and he would bring those sounds to the wheelhouse.

Q. And the same fellow that did the sounding, was he the same fellow that also closed the vents?
A. Yes.

Q. And when was that done?
A. The vents would be closed at the completion of loading when all the ballast was out.

Q. Did you wait to leave the dock when that was done?
A. I am sure they closed them immediately upon completion of the loading or shortly thereafter.

Q. They did?
A. By shortly, I mean within an hour.

Q. But would you wait at the dock until you got the report that that was done?

A. I can't really say anything about that.

I recall once that we stayed at the dock until the hatches were on, because the weather was bad outside the wall.

So I suppose if the captain would wait until the hatches were on and back down before he left, he might wait until the vents were also secured. He doesn't want to send a man out on deck to do that kind of work where there is any chance of getting knocked down or hurt by the sea.

Q. You said you waited until the hatches were all on.

Did you have to wait until the end of the loading process in order to begin putting the hatches on?

A. No. Some of the hatches were put on during the loading process.

Q. Would those be any particular hatches?

A. Well, they left open hatches, except what they call the holding hatches. These are the ones the mate would use on the final topping off to put the vessel in trim.

Q. Were those any particular hatch numbers that you recall?

A. They were, but I don't recall what they were.

Q. Where were they relatively? Were they in the middle or ends or --
There were a couple forward, in the midship and probably a couple aft.

Q. Do you recall roughly how many there were?
A. Perhaps a half dozen.

Q. And what happened to the rest of the hatches then?
A. They were probably closed already as the loading -- as the loading process was completed, we would bring out the seamen and they would start putting hatches on.

Q. What is the procedure involved in putting a hatch cover on?
A. The vessel was equipped with what they call a mechanical iron deckhand, a crane affair that picks up a hatch cover, which is just one solid sheet of heavy steel.

You simply just set it on top of the coamings.

Then, of course, you put the dogs on.

Q. About how many dogs were there on a hatch?
A. Well, I would have to think about that a minute.

It seems to me they were 15 or 18 inches apart.

The hatches are 12 by -- 12 feet fore and aft.

In the case of the Fitzgerald, I suppose they were 50 or 60 feet across.

Q. So there were how many hatch clamps again?
A. Well, I just don't know. I would have to stop and think about it.

I said they were about 18 inches apart, and it went
completely around the coaming. There were quite a few of them.

I would have to stop and figure it out.

Q. About how long did it take to dog one down?
A. Well, with two or three men working on there, they would have them dogged down, it would take maybe 10 or 15 minutes for two or three men to do it.

Q. Did they use all the dogs?
A. Oh, yes.

Q. Did you ever sail with a hatch open or undogged?
A. On the Fitzgerald?

Q. Yes, sir.
A. No.

Q. Why was that?
A. Why not?

Q. Why is it not common practice to do that?
A. To sail with a hatch open?

Q. Let me make it a question: Is it common practice to sail with a hatch open?
A. No.

Q. Is it a practice to sail with anything less than all the dogs on as far as you know?
A. They might do that in the summer months. I really don't know, but I don't think anybody does that in the fall or in the early spring. The practice there was to
Q. Do you recall what kind of dogs; do you recall what
the process was?
A. Well, it was sort of a heavy U-bolt affair with a
screw dog.
Q. As the mate, Mr. Orgel, did you have anything to do
with the lifeboats on the Fitzgerald?
A. Well, not other than having assigned an abandon ship
station. That's about it.
Q. Did you have a duty as far as the abandon ship
station was concerned?
A. Yes.
Q. What was that?
A. I believe my duty was No. 2 boat, in charge of launching.
Q. Did you have an occasion to practice that?
A. Yes, we had boat drills while I was on there.
Q. How long would it take to launch a boat?
A. Laying at the dock, you mean, or on a calm day?
Q. All right, on a calm day.
A. By the time you got the crew mustered on the boat
and started to clear away and lower the thing down, I
would suppose you could get her under way in, perhaps,
if you got her under way in the water in less than 10 minutes,
you were doing pretty good. That's laying at the dock
in a harbor somewhere.
As far as launching, as far as launching one of those
boats in sea under adverse sea conditions, I don't think --
depending on how severe the weather was, you would take
from anywhere from an hour to all day.

Q. Did the Fitzgerald have inflatable life rafts aboard?
A. She had those float-away things.
The canisters, you mean, that type? The canister
where the raft is in a canister?

Q. An inflatable life raft in whatever form.
A. Yes, she had those.

Q. Are you familiar with those?
A. No, I have never seen one of those things operate.

CDR. LOOMSORE: That's all I have, sir.
REAR ADMIRAL BARROW: Capt. Wilson?
CAPT. WILSON: Yes.

EXAMINATION

By Capt. Wilson:
Q. Mr. Orgel, you mentioned the phenomenon of springing
and, as I understand it, this was on an upbound trip when
you were in ballast, was that correct?
A. Yes.

Q. Did you notice the phenomenon when the vessel was in
a loaded condition that you spring?
A. Yes, it seemed to be doing it. It seemed to be doing it
slower.
Q. Was this in a following sea or in a head sea in a loaded condition now?
A. Both.
Q. Both? It seemed to make no great difference whether it was a following or a head sea?
A. It didn't seem to make a whole lot of difference.
Q. Did you also have in the loaded condition, bending occurring with springing?
A. In a loaded condition, yes.
Q. Would the bending more or less be pronounced in a loaded condition than when it was in a light or ballast condition?
A. Well, it is hard to say, you know. When the sea conditions were probably different. I really couldn't give a real good answer to that.
Q. You would say that it would depend more on sea conditions than the loading condition of the vessel? The sea conditions would make more variance?
A. Yes.
Q. In the period that you were aboard the Fitzgerald, was it common practice to leave the tunnel doors open or closed?
A. The tunnel doors were kept closed when the vessel was in a loaded condition.
Q. They were always closed in a loaded condition?
A. In a loaded condition, yes, sir.

Q. How would the doors operate?

A. If I remember correctly, they had the ordinary watertight dog door.

Q. You mentioned the tunnel vents being closed when in a loaded condition or -- I'm sorry, the side tank vents being closed when in a loaded condition.

What was the normal position for the tunnel vents?

A. I can't say. As a matter of fact, I wasn't even aware of the tunnel vents.

You were talking about tunnel? You are talking about the access for the crew fore and aft; is that it?

Q. That tunnel, yes.

A. I wasn't even aware of it.

Q. On the trip that was discussed partially, when you left Whitefish in weather, as I understand it, were you keeping in the lee of the Canadian shore?

A. No, as I recall, the wind was north-northeast and we wouldn't get a whole lot of lee from there. We would, if we were going into the north shore, heading into it, when we did have to come on a more westerly course, we would be in the lee of the shore. Follow me?

Q. Would this, then, take you up in the area between Caribou and Michipicoten?

A. Well, it depends on the weather. Perhaps there was some
talk about going up as far up as Slate Island, so when
the captain decided to come down on a more westerly course,
I just don't know.

Q. Was there any discussion concerning -- well, let me
rephrase that. I'm sorry.

Were courses laid out? You have a course, a track
line laid out?

A. The captain would instruct the mates on what course
he wanted them to steer, and of course then, if that didn't
work out too good, he would either make some changes
himself or instruct you to make some changes, alter the
course, to give the vessel a better ride, but he would
lay -- he will tell you where he wanted you to be.

For example, he would tell you he wanted to be six
miles off of a certain point. He would instruct you.

Q. Would he or would you, as mate, then, lay off on
the chart a course line?

A. Yes.

Q. You would lay off a course line for that point?

A. Yes, to make the course that the captain wanted, yes.

Q. During the period that you were aboard the Fitzgerald,
did the vessel ever navigate in the area of Michipicoten
to Caribou?

A. Yes, yes.

Q. You did? Was this in an upbound light condition?
A  Upbound light, right.
Q  Did you ever come down through loaded?
A  I can't recall coming down through there loaded on
the Fitzgerald.
Q  Now, on the trip -- did you say there was one trip or
there were more than one?
A  If I remember, I made four or five trips on there.
Mostly during that time of year, the wind was blowing.
We would have sea conditions.
Q  Yes, sir. How many of these did you go between the
Michipicoten Island and Caribou areas?
A  I think we went north on two occasions.
Q  Yes, sir. When you are navigating in that area,
did you use -- what chart did you use for navigational
purposes?
A  I can't put a chart number on it, but we would use a
general chart most of the way and then if we were going
to make a close-in, we would get a large-scale chart.
Q  Did you use the lake survey charts or the Canadian
charts?
A  Lake survey.
Q  You always used the lake survey charts?
A  Yes.
Q  Do you know if the Canadian charts were aboard the
vessel?
A. There were Canadian charts, yes.

Q. In the trip, two trips I believe you said, where you went between Caribou and Michipicoten, do you recall if Capt. McSorley gave Caribou a wide berth? Was he a man who liked to hug the shoreline or did he attempt to keep plenty of sea room between he and the land?

A. I don't recall going between Michipicoten and Caribou. Perhaps we did. I don't know, but we went to the north shore or in the general direction of the north shore, on at least two occasions when I was there, but just exactly the route we took, I couldn't tell you.

I know that we went north and when Capt. McSorley would lay or tell me where he wanted to go, he always wanted a course that was a good ways off of any point or anything.

He didn't want to run anything close.

Q. Was this just a general attitude of his that he tried to keep plenty of sea room?

A. I think so. I think if he was going to do anything else, he probably would have been there to look after himself.

Q. Yes, sir. Now, was Capt. McSorley the kind of a captain who required his mates to take frequent position checks?

A. Yes.

Q. Did you, as mate on there, rely more on the radar or the radio beacon for your position checks?
A. Well, I use the radar more often than the radio direction finder.

Q. Did the captain indicate to you any preference for how frequently he wanted you to get a position check on the vessel?

A. No, I can't recall that he did that. However, when he would come in the pilot house and wanted to know what time we was going to be at a certain place, I always thought it was a good idea of telling him right there because you can't tell what time you are going to be at one point unless you know where you are at.

I consider myself a conscientious mate and I don't think that McSorley ever had any reason to call me down for not having a fix, you know.

Q. Was he inclined when he did go to the pilot house to ask that question?

A. Oh, yes.

Q. And did he make frequent trips to the pilot house? Did he spend quite a bit of time there?

A. It would depend on the weather and visibility. Sometimes I stood quite a few watches where I did not see the captain at all. If it was restricted visibility or if the weather was any kind of problem, he was around.

Q. You said that you considered yourself a conscientious mate in your time on the Fitzgerald.
Did you consider the other mates to be conscientious mates? Were they as conscientious as you?

A. Oh, yes, both of them.

Q. You said that you had some boat drills the month you were on the Fitzgerald.

Do you happen to remember how many you had?

A. No, I can't recall.

Q. But it was more than one?

A. I believe so.

Q. Did you crank out the boats?

A. Yes.

Q. Did you lower the boats to the water at all?

A. No.

Q. You did not lower the boats to the water?

A. No.

Q. Do you recall the kinds of life jackets that were in the boat? Were they cork or kapok?

A. There were some cork but mostly kapok.

CAPT. WILSON: That is all I have.

REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:

Q. Mr. Orgel, do you have your license or document with you today?

A. No, I don't.
Q. I just wanted to get an idea of your experience on the Great Lakes.

You indicated to Cdr. Loosmore that you have been sailing about 23 years; is that right?

A. On the license, yes. On the lakes, yes, about 23 years.

Q. And you have sailed unlicensed, too; is that correct?

A. Yes, for a year or so, perhaps.

Q. On the lakes?

A. Yes.

Q. Have you sailed as a master on the lake vessels?

A. On some small coasters and tugs.

Q. On the Great Lakes?

A. Yes.

Q. When was the last time you sailed on the Great Lakes?

A. The last time I sailed as master?

Q. As master on the Great Lakes.

A. That would have been a tugboat.

Q. What year would that have been?

A. Well, that was also in '72.

Q. 1972?

A. Yes.

Q. Have you sailed on the Great Lakes since '72?

A. Just very briefly. I had one trip.

Q. And when was that?

A. That was just about three weeks ago, a McAllister tug.
Q: And what tug was that?
A: The Eileen Sea.
Q: Were you towing something?
A: Yes, an oil barge.
Q: Where did you come from?
A: Do you mean that particular cargo or the barge?
Q: Yes.
A: Let's see, we were towing an oil barge from Ontario to Oswego, New York.
Q: Did you make more than one trip, you personally?
A: I just made one personally.
Q: What did you do between '72 and this trip that you mentioned on the lakes?
A: I have been working for McAllister Brothers on these tugs.

You see, we have equal time off. If I work three weeks, I have three weeks off.
Q: But are you steadily employed as a licensed officer?
A: Yes.
Q: With McAllister?
A: Yes.
Q: How much experience do you have on ore vessels?
A: I would say on these lake bulk freighters, my experience would not exceed two years.
Q: Three years?
A. No, two years.

Q. And that would be what, as third mate or second mate?

A. Well, I think I put in about a year as a wheelsman to qualify for a lake license, and then probably another year or year and a half as a mate, a third mate.

Q. Do you ever sail as a third mate?

A. On a lake bulk freighter?

Q. Yes.

A. No.

Q. I am asking these questions to put into perspective this springing action that you had observed when you were on the Fitzgerald for that month of October to November in 1972.

In your judgment, wasn't that an unusual condition, or is this something that is common to all lake vessels?

A. There again, it seemed to me that it was a little excessive.

Like I say, I don't think with my limited experience on them, limited bulk freighters, I don't know that I am qualified to pass any judgment on the hull.

However, it did seem to me that it was excessive, considering the sea condition. I am talking about a 10-foot sea perhaps.

Q. This springing action, did it happen more than once during that month, or was it just that one time?
A. Like I say, most of the time that 30 days that we were in Lake Superior, we had probably gale force winds.

Q. I'm sorry?

A. I would say at least half of the time while I was there and while we were on Lake Superior and Lake Huron, we were experiencing gale force winds.

Q. Did you experience any relatively calm water or very small water?

A. Yes.

Q. And did she spring during those periods, too?

A. No. Everything was just fine when the weather was good.

Q. Would you say it was different from other boats or ships that you were on?

A. Oh, yes.

Q. It was?

A. It was different than tankers and these small coasters and tugs.

Q. You didn't experience that springing?

A. No.

Q. Do you know what kind of a closing device was on the vents on the Fitzgerald, how you close them or open them?

A. I believe it was a mushroom type cover on perhaps a three-quarter inch bolt or maybe a one-inch bolt on top of a 10 or 12-inch pipe. I believe that's the arrangement.
Q. Was it just a --
A. A mushroom type.
Q. When you say mushroom, that was a lid?
A. Yes.
Q. A lid, or was it a cap, would you say?
A. Well, it was both. It was a lid or a cap. Either word would fit it. It was in the center.
It was on a brass bolt, and it would screw down.
Q. Did you need some special tool?
A. No. I think they could screw them down by hand, but I believe there was a hex type nut on top of them.
I have been on several of those lakes.
Q. Well, as you remember.
A. As I remember.
Q. During the month you were on, where did the trips or what trips did the Fitzgerald take?
A. From Silver Bay to Toledo. I believe that was every trip.
Q. Carrying what cargo?
A. Pellets, iron ore pellets.
Q. You indicated about a loading procedure, about cargo and the mate would give you the sheets, the instructions and so forth?
A. Yes.
Q. Is the loading of an ore carrier very critical, the
sequence in which you load, or the amount in which you load at any particular time?

A. No, I don't think it is a very complicated procedure. I think they judge it mostly on fast performance.

I know that McCarthy had a book, in fact, he had a half dozen books in his locker that went back several years, showing and indicating where the cargo was to go, and what the draft should be.

Q. How would you, as a mate, know that the vessel was or was not stressed, the hull was not stressed?

A. Well, all of the hatches are open when you start, of course.

If you got a whole lot of cargo in one place, or you could tell by the draft midships and aft --

Q. How would that be an indicator of stress?

A. If the draft was not consistent, in other words, if she was drawing more midship than she was aft, you would have a problem, or if the draft was not as it should be, using common sense, then I suppose that just by looking at some of the internals that you might see on some of those ships for stress, that would give you some indication.

Q. Do you feel if you look at a vessel that you could see whether she was stressed or not?

A. Yes, and another thing I noticed that some of the mates did, they would pull the fence cable to see how tight that is.
Do you follow me?

Sometimes they would go slack if she was sagging.

Q When you went to watch the draft, this is on a finishing up procedure, you indicated you would be either forward or aft, and one of the other mates would be at the other end?

A The first mate would see to that, and the second mate or the third mate, whoever was on watch, the first mate would come out, regardless of the hour in regard to his watch and finish off the loading.

The other mates would assist him as they were directed.

Q Well, what would your instructions be about calling out the draft? Was it every half hour or 10 minutes or what?

A No. He had a walkie-talkie. You see, this ship was 730 feet long, and I would have one, too. We could talk to each other.

Q Would he ask for the draft?

A Well, for example, if I was forward, he would be putting cargo in and he would send me forward and say, "Let me know when she is drawing 22 feet 6 inches," for example.

Then I would watch the draft, and maybe he would perhaps tell me to go to midship, read it and report to him.

He would be in charge and we would assist.

Q You indicated that during a normal drill, it would take
about 10 minutes to launch a boat, a lifeboat, on the Fitzgerald with the way the boats were rigged up?

A. I would say that boat should be waterborne within 10 minutes after you had the crew mustered.

Q. You mean after the crew was mustered?

A. Yes.

Q. Do you think in an emergency you could speed that up a little bit, or the crew would speed that up a little bit?

A. I think so.

Q. What is your estimate about the quickest that they could get those type and size boats over after the crew was mustered?

A. This is laying at the dock in a harbor standing still, not moving?

Q. Yes.

A. I suppose if they really tried and wanted to get off in a hurry, I suppose they could do it in five or six minutes.

Q. When was the last time you were in a lifeboat?

A. Do you mean for a drill or for real?

Q. For drills first, and then for real would be good.

A. Well, on these tugs, you know, we don't carry lifeboats. I just can't remember when I was in a lifeboat last for a drill.

It would be possibly over 20 years.
Q. How about for real? When was the last time you were in for real?
A. I did that once in 1953 and once in 1943.
Q. What were those occasions?
A. Well, in 1953, I was in a gasoline tanker collision in the Rouge River in Detroit.
We abandoned to take the crew ashore, because we were afraid of an explosion.
Q. When was the other time?
A. That was during the war.
Q. What kind of ship was that?
A. The liberty ship.
Q. How long did it take you to launch those boats?
A. Not very long.
Q. 10 minutes?
A. Well, you know, those boats were strapped in.
Q. And that was during the war?
A. Yes.
Q. How about in '53? How long did that take?
A. That was a small coaster type tanker, and the boat deck was only 12 feet off the water.
The crew was anxious to leave, so I would say I got that boat off and away in probably less than 10 minutes.
Q. As you know, the purpose of this Board is to try to find out the circumstances that led up to the loss of the
Fitzgerald.

I realize that you might have read some facts in the paper, but let me give you these facts:

We have a vessel; the master has indicated that it is taking on list. She has a list, and she is taking on water and has the pumps on; the weather is very bad; the seas are 20 or 30 feet high.

The wind is blowing anywhere from 50 to 70 miles an hour. The ship is lost, and we recovered two lifeboats, one and a half lifeboats, two life rafts; we recovered 20 life jackets, 13 life rings, no people.

Given those facts and your experience, what do you think went wrong?

Why didn't we save more people?
A. Trying to launch boats, even if they had time, in those sea conditions, it would be almost impossible.
Q. Why is it impossible; what makes it impossible in your judgment?
A. When you break your boat loose from its lashings, she goes all over the place.
Q. Rolling and pitching?
A. Yes. Then you take in the case of these lake bulk freighters, if the vessel still has some way on her, you have to get a painter forward, otherwise you would lose her under the counter.
The problems are just insurmountable.
You want to remember now that the only people familiar
at all with those lifeboats are a couple of AB's and the mates.
Now, you have cooks and firemen and engineers, and
you have people that don't have any gear or clothes,
and they are just wearing their going-up-town overcoats
perhaps.

Then with that type of equipment, you can imagine
what it is like in a 25-foot sea.

Q. Do you think the boat would be smashed? Is that what
your testimony is? Before they could launch it?

A. All these lifeboat drills and all this is always done
on a nice sunny day in daylight in a harbor. It is a long
way from the real thing.

Q. Have you ever had a boat drill in the lake or under
way, in your experience?

A. Oh, yes. As a matter of fact, I think all of these
ships have had boat and fire drills while they are under
way, but they are not going to put the boat in the water.

Q. Why not?

A. Pardon me?

Q. Why not? Why can't you put the boat in the water?

A. You mean with the ship going or having headway on her?

Q. You can always stop the ship, can't you?

A. I doubt very much if you are going to get anybody
to agree to stop the ship in the middle of a lake and have
a boat drill. I just can't picture that.

Q Why not?

A This ship is going somewhere for some reason and
they got to get there.

Q Ocean ships do it.

A Well, I have spent several years on ocean ships and
I can't recall ever having a boat drill at sea where we
lowered a boat in the sea.

Q Why do you think we have not recovered any bodies?

A That is a mystery. I think perhaps it is possible
that maybe, you know, on those lake freighters -- I think
maybe some of the people may have gotten caught in the
tunnel, perhaps, going back to the lifeboats.

Why they haven't recovered any bodies, I just -- I
just can't understand that.

Q Do you think that the firemen or the engineer
on the ship aren't qualified to launch a lifeboat?

Is that your testimony?

A Some of them are; it depends on the individual.
I have been on boats where when you have a fire and boat
drill, sometimes an engineer and oiler or second cook
was the most attentive and was most interested and did a
very good job.

For the most part, I am saying that they don't have
gloves. They don't have the clothes.

Q. How about the training; do they have the training to do it?

A. I doubt if there isn't very few people in the engine room or in the steward's department that has a lifeboat certificate.

Q. You have those inflatable life rafts on board. Do you think you could launch one of those, Mr. Orgel, yourself?

A. Well, yes. Like I say, I never saw one. I have never seen one of these operate. I hear all kinds of stories about when the weather is 10 degrees Fahrenheit it will take an hour for the thing to blow up and I have never seen one operate. I have no idea what happens when you pull the pin, as it were.

Q. Do you think that people probably were trapped within the hull and that's why we haven't found any?

A. I am only suggesting this is a possibility. There must be some reason why one single body wasn't recovered yet.

Q. Any other reasons that might come to mind?

A. Well, no. There are a lot of possibilities, but I just can't imagine any good reason why there was nobody found.

CAPT. ZABINSKI: That's all I have,
Admiral.

REAR ADMIRAL BARROW: Counselor?

MR. MURPHY: Thank you, sir.

EXAMINATION

By Mr. Murphy:

Q. Mr. Orgel, I would like to know a little more information, if I may, sir, please, of your familiarity with the lake boats of the size of the Fitzgerald.

You have mentioned, of course, that you sailed on tugs and had a lot of service as master and also officer of tugs.

Just in general, what size vessel are you concerned with there?

A. Well, we are talking about anywhere from 100 to 150 feet.

Q. And then you think, you said you had some tanker experience, is that correct?

A. Yes.

Q. Would you tell us what size tankers you are familiar with, on which you have served as an officer?

A. I am talking about 3000-ton ships.

Q. What length and beam would that be? I am not really familiar with tankers.

A. From two to three hundred feet.

Q. Two to three hundred feet in length?

A. Yes.
Q. And have any of those tankers been on the Great Lakes?

A. Yes.

Q. And that is the size of vessel that you have served upon on the Great Lakes?

A. Yes.

Q. And then you did mention you had approximately, I think you said, two years in lake bulkers?

A. Probably.

Q. Would that be bulkers as distinguished from tankers or would that include tankers?

A. When I say bulkers, I am talking about lake bulk freighters.

Q. I see. Would you identify the vessels that you served on during those periods, please?

A. You mean the lake ships, the lake bulk freighters?

Q. Yes, please.

A. Well, let's see. I was on the Walter Sterling. These are just brief relief jobs, you understand.

Q. Yes.

A. The Patton, the White, the Steamer Patton, and then I was on the self-unloader, the W. W. Holloway, and Fred A. Manske. There was probably a couple more, but I can't think of them at the moment.

Q. I see. Thank you. You say those are mostly relief jobs. Was this a relief job that you were serving on the
Fitzgerald, do you recall that?

A. Yes.

Q. Do you recall approximately when it was that you had this conversation with Capt. McSorley that you described? Was that shortly after you had come aboard or was it on one of the earlier trips?

A. The only way I can remember the occasion was we come out of Whitefish Point and we got an urgent PAN message from the Coast Guard saying that the Hennepin was adrift in the vicinity of Keweenaw Point.

Q. Is that in Lake Superior?

A. Yes.

Q. I see. And this message was a PAN message?

A. It is an urgent message by the Coast Guard, an urgent message. It is short of a May Day, but it is an urgent message with regard to safety.

Q. And this had been heard on the Fitzgerald and Capt. McSorley had heard it?

A. The Coast Guard was broadcasting this and it come over our radio.

Q. Was that a matter of concern to him and to you at that time?

A. Not really because we were a long ways from the area that the Hennepin was in trouble.

Q. Do you feel that the fact of the Hennepin being
adrift was responsible for some of the conversation that
you had with Capt. McSorley at that time?
A. I think that probably had something to do with the
subject coming up, yes.
Q. And in what manner would you attach that to the conver-
sation?
A. Oh, we were all concerned. We hoped that the vessel
would be found and everybody would be all right. Somebody
remarked that they hoped it wasn't going to be another
Morrell.
Q. So that with a vessel adrift in Lake Superior, it
wouldn't be unusual for a master of a vessel such as
Capt. McSorley to express unusual caution, would it?
A. I think Capt. McSorley would use all due caution
regardless of what the circumstances were.
Q. And you think that perhaps this situation as to
Hennepin was what brought this conversation to light at
this time?
A. I think that is what motivated the five or 10 minutes
of conversation, yes, perhaps, maybe.
Q. Do you happen to recall whether that was one of your
first trips or second trip or third? Do you have any
recollection where that was in that order?
A. No. I don't think it was the first trip, no.
I just can't recall whether it was -- I made four or five
trips on her. I don't know which one that was.

Q. Did you have any personal knowledge of Capt. McSorley prior to the time that you served on the Fitzgerald?

A. Well, I had a speaking acquaintance with him for many years.

Q. Would you tell us about that?

A. McSorley lives in Toledo and so do I and occasionally during the winter months, we would see each other. That's about all.

Q. So that you did have a speaking acquaintance with him at least when you went on the Fitzgerald?

A. Yes.

MR. MURPHY: Pardon me a moment, would you please, Mr. Chairman?

REAR ADMIRAL BARROW: Off the record momentarily.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

MR. MURPHY: I have no further questions.

REAR ADMIRAL BARROW: You have no further questions?

MR. MURPHY: Not at this time.

REAR ADMIRAL BARROW: Cdr. Loosmore?

CDR. LOOSMORE: Yes, just a couple
of quick questions.

EXAMINATION

By Cdr. Loosmore:

Q Mr. Orgel, you are appearing here today in response to a subpoena?

A Yes, sir.

Q When you are standing deck watches, did Capt. McSorley require you to plot the positions that you found during the navigation?

A I am not sure exactly what you mean.

Q As you are navigating and you testified that you always wanted to know where the vessel was --

A Yes.

Q -- did you plot those positions on the chart?

A Only in the case of, let's say, bad weather or restricted visibility, we might.

The procedure on a lake vessel like that is that they put a chart out on the chart table and they leave that. They use that chart over and over and over again, you know.

It isn't like we do on the coast. We get a chart out and we are going down the coast and we may lay our course lines and fixes down there until the voyage is over.

They don't do that at this time. They used to chart more as a reference, I suppose you would call it, and one chart might be on the chart table for months.
So the only time that I would say that there is any plotting going on is when we have restricted visibility or bad weather.

When the captain comes in the wheelhouse and asks where we are, we would say something like, "We are five miles off of Eagle Point," just as an example.

Q. Did you personally keep a record independent of the chart of your position?

Would you write that down somewhere, for example?

A. Well, when we would pass from aid to navigation, for example, we would log that or I would log any change of course, anything of that nature. Weather, perhaps, I think any noticeable or appreciable changes in weather, would be logged.

Q. What are your instructions concerning radio telephone? Can you use the radio telephone as the mate?

A. Yes.

Q. Did the captain use the radio telephone?

A. Yes.

Q. When he was on the bridge, if there had been a call, would you have answered it or would he?

A. If I was on the bridge?

Q. If you were on watch and he was on the bridge.

A. Well, out of the respect of the captain, I would hesitate, you know, to let him go pick up the phone, if he wanted to.
but more than likely he will make no move, in which case
I will go and pick it up.

If the captain wasn't on the bridge, of course,
I would immediately go to the room.

Q. How about initiating radio telephone calls?
A. Yes. We mates do that, if it is expedient.

For example, in a crossing situation, where you are
the privileged vessel, you may want to call the other
vessel and see what he is going to do, use the radio
telephone for that, bridge to bridge.

Q. In your passages up and down Superior, did you and
Capt. McSorley ever discuss the shoals in the vicinity of
Caribou Island?
A. No.

CDR. LOOSMORE: That's all I have, sir.

REAR ADMIRAL BARROW: Capt. Zabinski?

CAPT. ZABINSKI: How old are you, Mr. Orgel?

THE WITNESS: I am 50 years old.

CAPT. ZABINSKI: 50 years old?

That's all I have.

REAR ADMIRAL BARROW: Capt. Wilson?

EXAMINATION

By Capt. Wilson:

Q. Sir, Mr. Orgel, during the time that you were on the
Fitz, did they ever tip ship?

A. To examine the wheel, you mean?

Q. Yes.

A. No, not that I recall.

Q. Not while you were on there?

During the time you were on the Fitz, did you ever take water in any of the cargo holds?

A. In the cargo holds?

Q. Yes, sir.

A. Not to my knowledge.

CAPT. WILSON: That's all I have.

REAR ADMIRAL BARROW: I have a few questions.

EXAMINATION

By Rear Admiral Barrow:

Q. Mr. Orgel, were you aware that there has been located one lifeboat complete, half of a lifeboat, and two inflatable life rafts following the sinking of the Fitzgerald?

A. No, I heard that one boat was recovered, I believe. When this happened, Admiral, I was not around where I could read any newspapers or anything and I didn't get home until the 20th, and by that time, I think -- what I am saying is that I haven't read much about this.

Q. You are not aware of this?

A. No.

Q. What kind of lifeboats were on the Fitzgerald?
What kind of releasing gear was aboard?

A. If I remember right, they were those screw quadrantal davits.

Q. What about the process in attempting to launch one of those boats from the time that the crew got back to the boat?

A. Well, you uncover it, of course, run out the painter, release the gripes, put the plug in, get her out of the saddle. All of these things vary. There is a little variation in how you get them out of the saddle, you know.

I think the Fitz had wire falls. I am sure she did. She had wire falls on a drum and then of course there is that long crankout thing, a long crankout process, but then in heavy weather, you would have to break the frapping lines.

Q. Then what would happen; you would lower it to a certain position and then load people in it and lower it further?

A. Yes, and then she had this -- I don't know whether she had a handle releasing gear or the cable releasing gear. I never saw the boat in the water there. I don't know what type of releasing gear she had, but these can be an awful problem. One end releases and the other end don't, you know.

Well, the next thing to do would be to get her in the water and get her away from the ship's side and release her.
Q. What kind of releasing gear is it that you are talking about that releases one end and not the other?

A. To release the falls.

Q. What kind of releasing gear are you talking about where that would occur?

A. Well, some of them are automatic releasing and the boat is waterborne and the pressure comes out and the hooks open and then some of them are a mechanical release where you pull on a cable that runs under the gunwale of the boat or a bar that you pull and there are variations of it.

(N.B.: See next page.)
Q. You don't know specifically what kind?
A. No, I don't know specifically.
Q. I think you stated that part of your assignment as
mate there was the assignment of crew to boats.
Were there any new -- is that what you said?
A. Assignment of crew?
Q. Assignment of crew to boats.
A. No. I didn't have anything to do with assigning boat
stations. That's the captain's job.
I believe I was in charge or second in charge of the
lifeboats.
I think the way they usually do it is they have two
boats, the captain and chief mate in one boat and the second
and third mate in another boat.
Q. Do you recall where the inflatable liferafts were
located on the Fitzgerald?
A. I know there was one on the focsle deck forward, and I
think there was one on a boat deck aft.
I think there were others, but I can't recall.
Q. There were two to your knowledge that you are aware of?
A. I think there were more. I think there were two or
three forward alone.
Q. To your best recollection, were they the float-free
type or hydrostatic release?
A. They were the hydrostatic release.
Q. Mr. Orgel, we have explained that the purpose of this Board is to determine to the best of its ability the cause as to what happened to this vessel, and you have been asked a number of questions here today.

I will ask you at this time if there is information which you have which has not been brought out by the questioning or which you have not brought forward to us.

Would you give us the benefit of your information?

A. No, Admiral, I don't have anything that I can think of at the moment that would be pertinent.

REAR ADMIRAL BARROW: Are there any questions from interested parties?

(No response.)

REAR ADMIRAL BARROW: Thank you very much. You are excused, and you are cautioned not to discuss your testimony with anyone other than counsel until the conclusion of the investigation. Thank you very much.

MR. MANN: Is he released now, Admiral, from any further return?

REAR ADMIRAL BARROW: Yes. I believe so.

Let's go off the record.

(Discussion had off the record.)

REAR ADMIRAL BARROW: We'll stand in recess at this time.

(Recess had.)
REAR ADMIRAL BARROW: Let the record show
that we reconvened at 5:14 p.m. Counsel for party
in interest same as before.

Commander Loosmore?

COMMANDER LOOSMORE: The Board calls

Mr. Andrew Rajner. Would you please stand?

ANDREW RAJNER

was called as a witness and, being first duly sworn, was
examined and testified as follows:

EXAMINATION

By Commander Loosmore:

Q. Mr. Rajner, we are required to make a verbatim
transcript of these proceedings here.

I would request that you speak up as loudly as
possible and as slowly and as clearly as you possibly can
so the reporter can get down what it is that is said.

Would you please state your name, address and
occupation?

A. Andrew Rajner, 119 Millford Street, Toledo, Ohio.

My occupation is first mate with the Oglebay-Norton
Company.

Q. Do you hold a Coast Guard License or Document, sir.

A. Yes, I do.

Q. Would you describe that, please?

A. Master and First Class Pilot, Duluth, Gary and
1. Buffalo and North Tonawanda and Tibbets Point.

2. Q   How long have you held this license?

3. A   The Masters License, this is my third year, three years.

4. Q   Do you have the license with you?

5. A   No, sir.

6. Q   How long have you held a Coast Guard License of any type?


8. Q   Where was your present license issued?


10. Q   Do you know the issue number?

11. A   No, I don't.

12. Q   Have you been sailing consistently on that license since 1958?

13. A   No. I was just taking temporary jobs for about five years, which did not amount to maybe more than two or three months in 1965, I was permanent, third mate aboard the Fitzgerald.

EDFANTER LOOSMORE:    Excuse me, Mr. Keenen, do you wish to appear on the record?

MR. KEENEN:         Yes, as attorney for Mr. Rajner.

COMANDER LOOSMORE:  All right. Thank you.

By Commander Loosmore:

Q   Mr. Rajner, did you ever sail on the Fitzgerald —

REAR ADMIRAL BARRON:    Excuse me. Note for
the record that counsel has been here before. Your
privileges are to extend to the witness his rights
and privileges before this Board of Investigation.

Our purpose is to investigate into the sinking of
the Fitzgerald on 10 November 1975.

We, of course, have no witnesses who survived and
are attempting to contact people who have some knowledge
of practices on the Lakes and also that do have a
knowledge of the Fitzgerald itself and to help the
Board in these proceedings.

THE WITNESS: Yes, sir. I realize
that.

By Commander Loosmore:

Q. Did you ever sail on the Edmund Fitzgerald?
A. Yes, sir, in 1965, and I relieved Mr. McCarthy this
year from September 12 to October 3 as first mate.

Q. Were there any other occasions that you sailed on the
Fitzgerald, other than 1975 and 1965?
A. No, none at all.

Q. How long were you aboard in 1965?
A. All season.

Q. You were?
A. Yes, from the first of April to approximately somewhere
around the 12th of December.

Q. And what was your assignment then?
32-1

31-6

1. A. I was in the position of third mate.
2. Q. Who was the Master on the Fitzgerald in September and October of this year?
3. A. Captain McSorley.
4. Q. Did he during the course of the trip that you were on board as first mate -- is that what you were?
5. A. Yes.
6. Q. You were first mate?
7. A. Yes, I was first mate.
8. Q. Did he ever discuss with you any of the problems that the vessel had?
9. A. No, he did not.
10. In fact he said that everything was going along fine.
11. Q. Was he the kind of guy who would have discussed problems if there had been any?
12. A. I believe so, yes.
13. Q. How long had you known the Captain?
14. A. Well, he lived in Toledo and occasionally we would work in the wintertime with each other, shifting boats in the shipyards and back and forth to the winter berths occasionally, and one winter I wheeled for him, it must have been back around '58 or so, just between Toledo and Detroit.
15. Q. Would you say you knew him well?
16. A. As a wheelman. Personally I did not know him real well.
17. Q. Professionally?
A. Yes, professionally. Yes, a very good man, competent, sober, about the best Captain I ever knew.

Q. Would you describe him as a cautious Captain?

A. I would, yes, cautious in every respect.

Q. Would you describe him as a very cautious Captain?

A. To my knowledge that I know him, yes, I would say that -- not to an extreme, but he was a cautious man.

Q. But not to an extreme; to continue my description, would you say he was overly cautious?

A. Not overly cautious, no, I wouldn't say that. No.

Q. Did he strike you as the kind of man who would have discussed problems if there had been any with other masters or people on other ships?

A. I believe so, yes.

He would come out and state his problem.

Q. While you were on board this year, in September and October, where did the vessel go?

A. We had three trips, Silver Bay and Toledo, and one trip from Silver Bay to Indiana Harbor.

Q. There were only four trips?

A. Four trips, that is correct.

Q. And all four loaded at Silver Bay?

A. All four at Silver Bay.

Q. Were you involved at all in the loading?

A. Just about every load.
Q. What were your duties at loading?
A. My duties were to supervise the loading and complete the loading.
Q. Were you in charge of loading?
A. I was in charge of loading.
Q. What information did you have in order to tell you as a relief mate what kind of loading to use?
A. I had -- when I came aboard, Mr. McCarthy took me to his room. He had the loading books out on his desk and he had the patterns all set in there.

He said to follow those, that they were good loads, and that the Capt. in preferred going on the Lake with a one-inch belly, meaning a sag, that was as far as I got, as far as loading was concerned.
Q. Could you describe these loading books a little bit?
A. Well, the loading books had the pumping out of the ballast when we arrived to the dock, the position of what holds and hatches to start them in and the amount of tonnage that went in each hatch and working up and then coming back, to start the other runs. That was all in his books, and it also had tons per inch emersion scale or table --
Q. Was this --
A. -- for each hatch, that was on each page.
Q. On each page?
A. Right.
Was this something that was a record of what happened then before?

Yes, and I looked through the books. They were strictly identical, all through the books except on -- it might vary on different drafts.

Were these handwritten, principally handwritten records of what had been done or were they printed up?

They were handwritten and there were some printed-up matter, too.

What was the printed matter, do you recall?

No, I don't.

I just scanned through it. It might have been the loading manual that he had aboard there.

Yes.

During the process of loading, you were loading at Silver Bay. Is that a chute dock?

Those are belts, two belts.

Two belts, all right.

Did you measure the drafts throughout the loading or just at the beginning and end?

Well, if I was on watch, I was watching the drafts as we loaded, yes.

If I was off watch, the men were checking the drafts occasionally through the loading.

What were you looking for with the drafts?

Well, we always kept an eye on it so we wouldn't get
Okay. How did you know when to pump a ballast tank, or did you do it while you were loading?

We were doing it while we were loading.

All right, is that correct?

The only time that I ever heard was for a little period in the forward tanks, to get your forward rig in there in No. 1 hatch. The rigs will not clear if the vessel was too high, so you have to hold your ballast a little longer on the forward tanks and those tanks, they only carried 12 feet, they were not pumped full on arrival.

Were the other tanks full on arrival?

Yes.

Let's see which ones are. I had wrote down here (indicating). 1, 2 and 3 have 12 feet in them.

4, 5 and 6 had 13 feet.

7 and 8 had 22 feet, and this gave us, this was his docking water, this was the water he was using for docking.

Okay. You are referring to some notes, Mr. Rajner.

Do you have notes or do you recall the details of the process of loading, how much cargo you put in each hatch and when you pumped and what?

Well, I don't have that information for this deep a draft. Those were left aboard ship.

Do you have them at all, for any?
All I have is one in 1965.
Okay. Let's come back to that.
The loading was on the same process.
The 1965 loading was?
Yes.
Okay.
Do you want the tonnages in this?
Yes, if you have them available. What is that? Is that a note of yours?
You can take a look at it if you want to. There are quite a few numbers here.
What is this, Mr. Rajner?
That is a loading pattern setup, the after rig starts here, and it works forward, and the forward rig starts here and starts forward.
This is loading?
This is one of the loading patterns used.
Loading at a two-belt?
That is correct.
I notice this says "Cargo No. 15, July 7 - '65." Is that the date this was done?
Yes.
July 7, 1965?
That is correct.
REAR ADMIRAL BARROW: Let's go off the record.
(Discussion had off the record.)

REAR ADMIRAL BARROW: Back on the record.

COMMANDER LOOSMORE: Sir, I have a hand-written sheet that is marked "Cargo No. 15, July 7 - '65," that I would request be marked Exhibit 91 for identification.

REAR ADMIRAL BARROW: Mark it so.

(Exhibit 91 was marked for identification and made a part of the record.)

MR. MURPHY: There is certainly no objection, but I question the pertinency of something that happened in 1965 and with respect to these proceedings, particularly in view of the changes of the load line in 1973, but I don't object to the Board using it for whatever purpose it might think is material.

By Commander Loosmore:

Q Mr. Rajner, who made out that sheet there?
A That sheet here?
Q Yes. Do you know who made that out?
A The mate, the first mate that was aboard the vessel at the time at this particular load. He is in the room right here, Mr. Gerald Lang.
Q. Gerald Lang?
A. Yes. This is a copy. I copied this myself.
Q. Whose handwriting is this on there?
A. That is my handwriting.
Q. And who did you copy that from?
A. One of the loading manuals.
Q. One of the loading manuals that existed or one he made out?
A. One that was on the ship when I got there.
Q. When did you copy that?
A. This was in '65.
Q. In '65?
A. Yes, sir.
Q. I was going to ask you how you had it or how you still happened to have it some ten years later. Did you keep all of these kinds of records?
A. On some of these loads I did, yes, but not all of them.
Q. Well, does that form indicate the sequence in which cargo was loaded on the Fitzgerald?
A. The loading procedure, yes.
Q. Okay. So we are talking about the same thing.
A. We weren't using this. The pattern was the same, but the tonnages were different.
Q. When?
A. In '75.
Q. Okay.
A. With the increase in draft, she took more tonnage.
Q. But your testimony is, I think you have said it twice now, that the pattern, the sequence in which the cargo was loaded aboard was the same in 1975 as it was in 1965?
A. Yes, there would be a very slight variation.
Q. We all agree there was more cargo put aboard in 1975 than there was in 1965.
A. Yes, sir, about, I would say about two more feet of draft. That boat there was 25 ton.
Q. Referring to Exhibit 91.
A. We were loading 25 ton or 27 ton in 28 feet.
Q. Did you load 27 ton?
A. When I was aboard, she was 27 ton and 11.
Q. Do you have records of what the drafts were?
A. No, I don't. I left them aboard the ship. I had them made out, but I left them aboard, mistakenly.
Q. Mistakenly?
A. Yes, I would like to have one.
Q. Was it a normal procedure to send any record of that ashore?
A. Oh, not necessarily, no. It was just the mate keeping a record in case he had to go back. It would give him an idea, give the mate an idea of what he was going into, you know.
Q. Was there any record of that sent ashore at all that you
know of, in a log or anything?

A. No, not that I know of.

MR. MURPHY: Excuse me. Can we have the witness speak up a little?

MR. KEENEN: Keep your voice up.

THE WITNESS: There was no record that I can recollect sent ashore, unless the mate copied it and took it himself. I don't know.

By Commander Loosmore:

Q. Was there any company requirement to do so?

A. The only company requirement is to keep the loading book, a record of all loads and they are kept on board ship. The only place you would find these loads or the tonnages that went into the hatches would be in the back of the loading books. All these loads are entered into the log books in the back.

Q. Is that the ship's log or the office log?

A. The ship's log.

Q. Does any of that get to the office log?

A. No, sir.

Q. Do you know what becomes of the ship's log after a season?

A. Well, on most of the ships I find them on board for several years.

Q. What I am getting at, and I think I will ask the
question directly, is there -- to your knowledge, is there
anything that left the ship, any information which left the
ship on a matter of routine, which would assist us in
determining the amount and distribution of cargo that was
loaded aboard the Fitzgerald when it left Superior on its
last voyage?

A. The only thing I can tell you is that sometimes the
bill of ladings are mailed down to one of the mail stations,
either Detroit or Toledo, if they don't get it through the
tonnages. Sometimes they just call you for the tonnages and
just mail you the bill of ladings.

Q. Yes, sir, we have a bill of lading in evidence which
shows it, but it is my understanding that all that does is
show the total amount of cargo aboard.

A. That is correct.

Q. You were the guy that was in charge of the loading of
the vessel. Isn't the distribution along the length of the
cargo also important?

A. It sure is, yes, absolutely.

Q. How would you know, as a relief mate, how to
distribute the cargo?

What information do you use in order to determine that?

A. Oh, I used the information Mr. McCarthy used all season
long.

Q. Okay. Now, you have shown us the distribution in that
exhibit there. How did the distribution which you used on
your four loadings at Silver Bay this year differ from the
distribution that you show right there, can you recall?
I don't think you can remember the amounts, but can you
recall anything significant?
A. Well, I can say this much, the after hatches were piled
up higher and so were the forward hatches, and the distribution
through the middle was not too much different than what you
have here, maybe a few hundred ton.
Q. Do you know what that cargo was in 1965?
A. It says 24,423 gross tons.
Q. What was it? What was the commodity?
A. Pardon me?
Q. What was the cargo?
A. Pellets.
Q. Pellets? Taconite pellets?
A. That's all you load in Silver Bay are pellets.
Q. But, as far as you know, then, the procedure, the
pattern, was the same in 1975 as it was ten years previously?
A. There might be a little variation in a hatch or two,
but the pattern is all the same. The pumping out -- maybe
on this here --
Q. Well, looking then at Exhibit 91 here, could you
describe to us the procedure that you used? You start out
from coming in, in ballast, and are ready to take cargo
aboard.

What is the first thing that you did?

A. The first thing we would do is start pumping ballast after we made our dock and this would be started by pumping out 4, 5, 6, 7, and 8 and holding 12 feet in 1, 2, and 3.

Q. All right, and after you had started pumping, when did you start to take cargo aboard?

A. Immediately.

Q. So that you were taking cargo on board and pumping at the same time?

A. That is correct.

Now the hatches that they started in was No. 21 hatch and working up deck would be the east rig which is No. 1 rig and then the west rig is No. 2 rig and he starts in the vicinity of 16 hatch and works forward through No. 10.

Then when he finishes up there, we move up into No. 1. When he gets started there, we start pumping 1, 2, and 3 after he gets a good start, and then the other rig comes up when he finishes his run through 17, he comes up to No. 5 and works aft until he gets his run in and that would be through No. 9, and you have one full run through the board.

Q. Did you ever come back to a hatch and put more cargo in a hatch?

A. Yes, the tonnages are just about double for one run, and the next run they take about the same amount through the
middle.

Now, there is a shift in between -- I did not mention the shift, 24 astern on account of the silos over there, the length of the fixture, you have to shift back.

Q  You shift the vessel?

A  Shift the vessel. You stop loading, shift the vessel, and then you can proceed with your loading. That changes -- that is why you skip this No. 20 hatch.

Q  Okay, on Exhibit 91 at No. 20 it's noted "Skip on the first run"?

A  Right.

Q  And --

A  Then the second run.

Q  And then it is noted "Skip on the second run"?

A  Because you have it out of the way then.

Q  All right, sir.

Did you ever come back a third time to any hatch?

A  Only on windup.

Q  On windup?

A  Yes, on the finish.

Q  All right.

A  That is when we are going into final draft.

Q  Okay. Where would that, those be indicated?

A  Oh, sometime we reserve about a thousand tons for trim, final trim.
It could go forward and it could go aft, the holding hatches, wherever you needed it, depending on your sag or hog in the vessel.

Q    Okay. On this particular loading in July of '75, did you take on board any additional cargo on windup?

A    No, this here one I couldn't tell you (indicating).

Q    This is looking on Exhibit 91, that indicates that you did?

A    Took on additional cargo?

Q    Well --

A    Just these here (indicating), the three (indicating).

Q    Then you have a hundred and fifty and thirty?

A    That is correct.

Q    And the hundred was then in Hatch 8?

A    Now, these are -- here's your tonnages here, that amount, that would be over a thousand tons on windup.

Q    So underneath the column which is headed "25-7," then there are quite a few figures?

A    Right.

Q    Do those indicate --

A    Those are tonnages put in the hatch.

Q    In hatches through 10 and 20, skipping 13 and 21?

A    Right.

Q    All right, and what do the figures in the column on the right-hand side mean?
A. That is the total tonnage that was ordered up for those hatches.

Q. Okay, and the figures in the column on the far right-hand side, the four, three and three-quarters and so forth?

A. That is TPI, tons per inch emersion.

Q. All right.

A. That is what each hatch will go down per hundred tons.

Q. Where would you read that change in draft?

A. Read this change in draft?

Q. Is that a change in mean draft?

A. You are talking about in between a load?

Q. No, sir, I am talking about what the significance of the figures in the right-hand column is.

A. Well, you can on a final, here you would use these on lining up, putting your boat down to draft.

Q. All right. Let me illustrate that with an example.

A. In other words, this hatch here, you have two on the side here.

Q. You are pointing to No. 9 hatch?

A. Right.

Q. Right.

A. You go down 50 tons, you go down one inch, whereas with a hundred tons you go down two inches, in this particular hatch.

Q. All right.
Well, what does the figure 3 for Hatch No. 5 indicate then?

A. It should go three inches to the hundred.

Q. All right, where did you get that information?

A. Well, that was, I imagine, through a workable scale.

Q. Was that available?

A. It was on board ship, yes, on board. That is already laid out.

Q. What were the final drafts when you loaded in 1965?


Q. Okay. Do you know what the final drafts were when you loaded in 1975?

A. 75 would be a variation, 27-10 and 27-9, 27-8, that was one of the drafts.

Now, that was the first load and the second load, if you went to 25-11 -- I mean 27-11, I'm sorry, I am trying to get this one hatch in here.

Q. If you can recall, Mr. Rajner.

A. It was right around 27-11 and 8, it was right in that vicinity we had a good inch belly to her or sag.

Q. All right, sir. Did you ever fuel at Silver Bay while you were loading?

A. Most of the time, yes.

Q. Were you in the loading sequence when you would take aboard fuel?
A. Oh, this is possible. It varied. It all depends what time they were able to come down to fuel you.

Q. It was done before the loading?

A. Right.

Q. Before the loading began or before the loading was finished?

A. Sometimes if you had to wait for cargo or anything like that, they would fuel you right away. It all depended on the oilmen.

Q. Would you ever wait to start?

A. There were times that we did wait, yes.

Q. Did you ever take fuel at the same time that you were taking cargo?

A. Yes.

Q. Did you ever take fuel or still be taking fuel aboard when you were finished with the cargo?

A. No, not that I can recall, never.

The fueling was done before the loading was completed at all times.

Q. Did you have any information, or did you receive it from the mate you relieved about the sequence or the procedure of loading at a chute dock? Did he tell you anything about that?
No, I did not receive anything, but there was information aboard that he did have a load there that he did at Superior this year.

Did you know when you went aboard that all of the trips you would be on board for would be to Superior?

Yes, they were in his desk.

But did you know you were going to Superior every time?

Do you mean Silver Bay?

I mean Silver Bay, yes.

Not every time, but it was a pretty good likelihood, because she ran there quite a bit.

When I came aboard, he said, "The next three trips will be to Silver Bay."

He didn't state they were all Toledo or Indiana Harbor, but he said the next three loads would be to Silver Bay.

And you knew that Silver Bay was a two-belt operation?

Yes, sir.

When did you put the hatch coverings back on?

During the loading.

During the loading?

Yes, as the hatches were completed, they started putting them on.

It could be sometime after the second run that we had hatches completed and started putting them on. The vessel always had the hatches on before we left the docks.
Q. Before you left the docks?
A. Yes.
Q. You were on board in September, and did you always put down all the hatches?
A. No. If the weather was good, he left orders with me to put down every other one.
Q. How were those orders given?
A. Verbally.
Q. And when you say that he left orders, who are you talking about?
A. The Captain.
Q. And did you discuss loading details with the Captain?
A. Yes, at times.
Q. Who did the actual work of putting the hatches on?
A. That was done by the boatswain and the deckhands.
Q. How long would it take to put one hatch cover and dog it down?
A. Just a matter of minutes. It would not take long at all. They could go through the whole boat in less than an hour.
Q. In less than an hour?
A. That is all the clamps. They had a very efficient, competent crew on there.
Q. Were any of the four trips in which you were aboard, were there times when you put down more than half of the clamps?
A. Yes, there was. There was one trip that we had a little
weather and the Captain wanted them on, and we put them all down.

Q. How did it go? What did he say?
A. We had some strong northeast winds coming up.

He said, "Andy, you better figure that I am putting all the clamps on this trip," and so we went ahead and put all the clamps on.

Q. How about the vents? There has been a lot of talk about vents here. Were they open or closed or what?
A. To my knowledge, as far as I can recollect, they were open.

Q. They were open?
A. Yes, sir.
Q. Alright. And do you remember anybody -- they were open all the time?
A. Yes, sir.
Q. What was your assignment for "abandon ship," Mr. Rajner?
A. The assignment for abandon ship?
Q. Yes, sir.
A. It was to take command of the two lifeboats.
Q. Of the boats, both boats? I'm sorry. I didn't get your answer. To take command of the two lifeboats?
A. In the launching of both boats.
Q. Which one would you have launched first?
A. Well, it all depends on which one you are able to launch.
Sometimes you can't launch a boat. You might be only able to get one off.

Q  All right. Were you assigned to one boat or the other?
A  Well, I was assigned to the port boat, yes.
Q  Did you have drills while you were on board?
A  We only had one drill that I know of, that's all.
    I was only there about three weeks and we had some --
    some of the weather didn't permit it.
Q  Did you put the boat over the side?
A  The boat was swung out, yes.
Q  Did you put it in the water?
A  No.
Q  Could you have put it in the water?
A  I wouldn't want to do it underway, no.
Q  Why not?
A  Why not? You would turn the boat over.
    I never heard of launching a boat going full speed.
Q  How slowly would you have to be going in order to launch
    the boat?
A  Well, I would say not much more than five miles an hour.
    I mean, it could be launched. I am not saying that it can't,
    but at a terrific speed like that, I don't know. You would
    have to lose about 18 miles an hour light, and 16 loaded.
    It would be kind of dangerous.
Q  What kind of radios did the Fitzgerald have aboard?
A. Well, she had -- did you say radar?
Q. Radio.
A. Radio?
Q. Yes.
A. Well, she had FM, two FM sets. One was on ship's power
and one was on battery, and she had an FM phone and also she
had a new dial phone that they just received when I was there.
They just got it aboard.
Q. How do they work?
A. The phones, you mean?
Q. Do they work well, or were you having trouble with them?
A. They had a little trouble with the new phone, but that
was corrected later on.
Q. While you were still aboard?
A. Yes, sir.
Q. Were they reliable? Do you feel they were reliable?
A. Oh, I would say yes, they put out good. All the time
that I was there, I couldn't see any problem, no problem with
the phones.
Q. Did you have any AM capability?
A. Yes, we did have that AM, but we weren't using that too
often anymore.
Q. Where was the receiver for that?
A. For the AM phone?
Q. Yes.
A. We had one in—oh, let's see, that was—I've got to think.

Q. Was it on the bridge? Was it in the wheelhouse?

A. Yes, it was in the wheelhouse.

Q. Was it always kept on it?

A. But, we had one and I am trying to think of this here one in the chartroom.

Q. How about the radar?

A. We had two radars. One was a newer one and one was an old one, Sperrys.

The older one seemed like she was getting kind of obsolete. So we didn't use it, only in case the other one went out, and it did at one time. The scanner got knocked off in the Indiana Harbor, and that was replaced. That was replaced one trip later in Toledo, I believe. They put a new scanner on it. One of the ore rigs knocked it off.

Q. What was it about the new one that you liked?

A. The new radars?

Q. Yes.

A. That she could reach out farther, a farther distance. The range was longer.

Q. What kind of range did you ordinarily have?

A. I have seen her reach out a good 50 miles, pick up just as beautiful as could be.
Q. Do you know how long that would have been on board?
A. No, I don't.
Q. Did you ever tip ship while you were on board to inspect the propeller?
A. Not on the Fitzgerald.
Q. Did you have inflatable liferafts on the Fitzgerald?
A. Yes, sir, two of them.
Q. Where were they located?
A. One was on a fantail up by the boat deck, and the other one was on the Texas deck behind the pilothouse.
Q. Did you ever see one of those operate?
A. Just on film. These were both the float-free type.
Q. You said you had one trip that you made this year with some weather?
A. Yes, sir. We were downbound, and we were taking on some spray off of North Manitou. The ship was rolling a little bit, nothing to be real concerned about.

She was taking on some spray, and I did notice these caps, you know, the sounding well caps.

There were about three on the port side that were flopped open.

They looked to me to be in an open position, and it looked like they were submerged in open water.

I brought the Captain's attention to it and the wheelsman's attention to it, Mr. O'Brien, and they took a look through the
binoculars, and they looked at them and said that definitely
they were open.

Now, I tried to get somebody out there to close them,
but they said it was just a little too much sea coming over
to do it.

So the Captain said to check it out, and I did send the
watchman down after the seas went down, and they were left
open, you know, the caps were left open from the previous
sounding, that one of the deckhands left the cap open.

Q. Was that common?
A. Well, you have to watch them. It is not real common,
but you have to keep an eye on them.

Q. Did the engineroom report that their king gauges were
making any water?
A. No.

Q. There was no report?
A. No, no sufficient amount was taken.

The next sounding we took didn't show anything.

Q. Do you know whether you could pump the cargo holds with
cargo aboard?
A. That would be debatable. I don't think you could get
through them screens.

Q. Did you ever have occasion to load in the rain or
anything like that when you needed to pump?
A. No. The amount that you would get from rain was too
insufficient to fool with.

Q Did you ever pass near Caribou Island with Captain McSorley?
A No, I never had the opportunity to be down there with him. I have been through there though.

Q I am referring specifically between the period of September and October of this year when you were aboard.
A No, none at all.

Q Did you discuss the shoals in that area in general?
A No.

Q You had none?
A I never had the opportunity or never had to.

COMMANDER LOOSMORE: That is all I have.
REAR ADMIRAL BARROW: Captain Wilson?

EXAMINATION

By Captain Wilson:

Q You said during your period of time on the Fitz, you did not tip the ship?
A No, sir, not that I know of.

Q Had you been on other vessels when they tipped ship?
A Yes, sir, I was on the Oglebay this year that we tipped.

Q When doing this, do you do it while you are loading or off loading or with cargo in the ship, or is there any particular way?
A This one particular time, we were waiting to be loaded,
and they tipped it without any cargo.

They tipped it with ballast.

Q   Have you ever been on one that had been tipped when
they had cargo in the holds?

A   Yes, but I don't recollect which one it was.

Q   Did you notice during either -- you said you sailed
the full season of '65.

You said you sailed also to relieve the trip in '75.

Did there appear to be any difference in handling
characteristics of the ship between the two times? Did you
notice anything different?

A   The handling?

Q   Yes.

A   No, sir. It was a good running ship as far as I was
concerned. I always thought it was one of the safest ships
on the Great Lakes.

Q   Did she spring a lot?

A   Oh, yes. Most of them do. I was aboard the Armco,
and she did. I was also aboard, First Mate aboard the Reserve,
and she did the same thing. She had a spring. It was humping
or whatever you want to call it.

Q   Do you have any impression, and I know you would probably
not have any absolute measurement, but do you have any
impression of the difference or the period of springing of
the Fitz from, say, the Armco? Were they about the same?
A. I would say slightly more on the Fitz.
Q. The Fitz sprung slightly more than the Armco?
A. Yes.
Q. How about on the Reserve?
A. About the same. The Reserve would be about the same as the Armco.
Q. The Reserve and the Armco would be about the same, but the Fitz would --
A. -- would spring a little more.
Q. To the best of your recollection, did this appear to be the same when the vessel was in a ballast as in a loaded condition?
A. Well, she would do it in a loaded condition also.
I have noticed it in a loaded condition.
Q. About the same?
A. No, it would not be quite the same. You would have a little more.
Q. A little more?
A. When you are light.
Q. A little more springing when she was light?
A. Yes.
Q. How about bending?
A. Bending?
Q. Yes. We have had people discuss bending.
A. Bending and springing.
I would say she would have a little more when she was in a loaded condition, going into a sea.

Q. You would have a little more bending than in a light condition?
A. Yes.

Q. How about compared again with the Armco? Is it more or less?
A. I would have to say--I could tell you a little better with the Reserve. It is the same size vessel.

Q. How about the Reserve?
A. The Reserve worked -- she worked the same thing as when she was loaded also.

Q. Would you say the bending of the Reserve and the Fitz were about the same?
A. I would say, when they were loaded. There is not too much difference.

Q. Did you ever, when you were on the Fitzgerald, either in 1965 or 1975, did you ever take water in the cargo holds?
A. No, not that I can remember.

You mean for ballast?

Q. No, sir. I meant from seas, intentionally pumping in the cargo.
A. No, I never have.

Q. Did you ever put it in the cargo holds for ballast?
A. No.
Q: Normally, were the tunnel doors left open or were they kept closed?

A: Now, I have seen them left open and I have seen them dogged. They are supposed to do them, but occasionally these guys, the crew will walk through and they will forget themselves and not dog, but normally they are left open. I have seen them open many a time.

Q: Did you ever, any of the times that you were on the Fitzgerald, did you ever have much problem with water in the tunnels?

A: Never. I never seen any water in that tunnel. It was just as dry as could be.

Q: And normally were the drain valves closed or open, the tunnel drains?

A: The tunnel vents?

Q: Drains, the drains, to drain the tunnel.

A: To drain the tunnel?

Q: Yes.

A: No, I would say that they were closed, most of the time on account of ballasting.

Q: Did you ever suffer a power failure on the Fitzgerald while you were there?

A: Not at all, no, no power failures at all.

In 1965, they had none that I can recall.

CAPTAIN WILSON: That's all.
REAR ADMIRAL BARROW: Captain Zabinski?

EXAMINATION

By Captain Zabinski:

Q. I would like to go through this loading procedure again. This one was in July of 1965 on this Exhibit 91.

There are items marked on the top. It says, "First Run," and then it goes on, "1, 2, 4, 3."

What does that stand for, "1, 2, 4, 3"?

A. 1, 2, 4, 3, that probably would be the loading sequence, probably of the rig.

(Handing to witness.)

Q. Right here, right under the words, "First Run," there is, "1, 2, 4 and 3."

A. Yes, sir, that is the loading sequence for that No. 2 rig. He would come 1, 2, and then go to 4 and then go to 3. That's all that is, sir, and the same way here (pointing).

Q. And the other one is 1, 4, 3 and 2?

A. Right.

Q. What would that mean? You would go first to Hatch No. 1?

A. That is correct, sir.

Q. And then you would go to Hatch No. 4?

A. Right.

Q. And Hatch No. 3?

A. Yes, and then 2.
Q. And then 2?
A. Yes, and that way you kept the rigs separated, so you
don't have so much to work with. That way, you are not
bumping into each other.
Q. Well, is that the only sequence you have to worry about
is on 1, 2, 3 and 4 hatches, or do you worry about the others,
too?
A. You worry about the others. You keep an eye on these
rigs. Sometimes one might get slow, and you might get stuck,
especially in the wintertime where you get frozen pellets that
come in chunks and they have problems opening the chutes and
gates and what not.
So you just have to keep an eye on them, but in loading
sequences here, it could be 1, 2, 3, 4. It wouldn't make
much difference in changing one hatch to the other. It is
only 24 feet.
Q. Twenty-four feet? You don't feel that it makes any
difference?
A. No.
Q. How much would you load in No. 1, let's say, before you
shifted to No. 2?
   Would you take the full load or just one run?
A. You would take 700.
Q. Seven hundred tons?
A. That's right.
Q. And just to go back now, you indicated to Commander Loosmore that you would start on Hatch No. 21, is that right?

A. That is correct.

Q. And you would take 1700 tons in Hatch No. 21.

A. 21, on this particular load.

Q. And you skipped No. 20?

A. Yes.

Q. Then you went to Hatch 19 and you put in 300 tons.

A. Right.

Q. And then you went right on up the line to No. 10, as indicated here in this first column.

A. This rig ran this far. There are two rigs. He come up through up to No. 16.

Q. 16?

A. That's correct, and then this No. 1 rig, he started from there and worked.

Q. From No. 16 up to 10? And the other rig would load from 16 to 10, is that correct?

A. That is right.

Q. Now, would both rigs be loaded simultaneously, one loading at 21 and the other at 16 or do the rigs -- did one wait on the other one?

A. No, they both started at the same time.

Q. In other words, you would load in one rig, would load in 21, and the other rig would load into 16?
Q. In the amount shown on here.
A. Yes.
Q. And then what would happen? Where would No. 1 rig shift to after he finished up at 16?
A. After he finished up here, this fellow, the other rig, finished up 10.
Q. The other rig finished No. 10?
A. Yes, the tonnages split. This one will stay ahead of them.
Q. Where would the rig shift to? What would happen?
A. You will follow your loading procedure here. You would start pumping those -- well, not yet. We are still pumping ballast all the time.
Q. All the time? Out of which ballast tanks?
A. Out of 4, 5, 6, 7 and 8.

REAR ADMIRAL BARROW: Is there any indication of that on this particular piece of paper that you are referring to?

THE WITNESS: When we shift now, you go 24 feet --

REAR ADMIRAL BARROW: I am sorry. We are talking about the piece of paper that you are referring to.

CAPTAIN ZABINSKI: Exhibit 91.
REAR ADMIRAL BARROW: Exhibit 91 for identification, and you have indicated, looking at it, there is certain pumping out of the ballast tanks.

Is there anything indicated on this exhibit which refers to pumping out ballast tanks?

THE WITNESS: No, there is nothing on it that says that we were pumping out, no. I am taking this off of my loading notes for 1975.

By Captain Zabinski:

Q And you feel that the discharge of the ballast was the same in 1965 as they were for 1975?

A Yes, I would say it would be pretty close.

Q When the rig is finished, the two rigs are finished loading, the hatches between No. 21 and 10, what is the next sequence of events as far as loading cargo?

A The ship was shifted astern like here (indicating).

Q The ship was shifted astern?

A Twenty-four feet, right. Then No. 20 would be in the last silo. You don't go in the 21 anymore. You skip that. Then they start up here at No. 1, work back, and this other rig, he starts at No. 5, and he works down.

Q One rig then would start loading 1, 2, 3 and 4 in sequence, and the other rig would be loading 5, 6, 7 and 8?

A And 9.

Q And 9 in sequence; is that correct?
That is right.

When those were finished, what would happen?

That is one complete run.

Now, we started pumping that other ballast.

What other ballast?

That would be 1, 2 and 3.

Are you still pumping 4, 5, 6, 7 and 8?

At this time we are pumping on everything.

How long would it take you normally to make one run from 21 to --

I would say about --

On this typical loading?

I would say about an hour and a half.

And how long would it take you to discharge the ballast of 4, 5, 6, 7 and 8?

Total time would be around three and a half to three hours and forty minutes.

So you would make a couple of runs before all the ballast goes out?

Right.

Now, what is your next run that you make with your loading cargo?

Do you shift your ship again?

No. You only need one shift here, and the rest of the hatches will be --
Q: -- on line?
A: -- on line. And you start back here on No. 20.
Q: You skip 21, and you start -- one rig starts from 20, 19, 18, 17 and 16; is that right?
A: That is correct.
Q: And the other rig starts at 15, 14, 13, 12, 11 and 10?
A: Right.
Q: Now, when those are loaded, what happens?
A: When those are finished, you can go back up into No. 1 again. You work them back after again.
Q: One rig works 1, 2, 3, 4 --
A: 1, 2, 3, 4 and another rig works --
Q: -- 5, 6, 7 and 8?
A: And 9. Occasionally the split that hatch. That is what that means.
Q: Referring to the run in the fourth column where you have 300 above the line and 300 below the line?
A: Right.
Q: Does that mean one rig puts in 300 and the other rig puts in the other 300?
A: Yes.
Q: Is this the 300 loaded by the after rig, did he put the 300 in No. 4 first before he went to 5 and so forth?
A: That is correct.
Q: Then what was the sequence? Are we still discharging
ballast at this time?

A. Yes, sir. It should be pretty well off by now. Of course, we are taking soundings all the time, too.

Q. The sounding of ballast tanks?

A. And the mates are checking the draft occasionally to see how the draft is coming and to see whether the ship is hogging or sagging.

Q. What is your next loading sequence?

A. Well then, we would be going down to our final draft here. Pretty soon.

Q. Well, you have made two complete runs. Is that what you indicated in Columns 1, 2, 3, 4 and 5? That indicates two complete runs, plus the hatch numbers listed on one side?

A. Yes.

Q. All right. Now, you have a draft, a diagonal line and the draft reads 23 feet 7 inches, 24 foot 3 inches and 25 foot 7.

What does that draft, or what do those drafts indicate?

A. This would be your after draft --

Q. Indicating 23 foot 7 aft and 24 foot 3 inches midship and 25 foot forward?

A. That is right.

Q. When do you take this draft, Captain?

A. That is after your second run.
Q. Is that what the drafts actually are at that time, or is that what you estimate them to be?
A. That is what that particular load was.
Q. Is that estimated, or is it an actual draft?
A. That would be an actual draft. That's not an estimated draft.
Q. That you took at that time?
A. Yes.
Q. And you had a mate standing forward and aft, and they read that off?
A. Yes.
Q. Now, what is the next sequence of loading?
A. Well, as you see here, the vessel is by the head, and we put more cargo and put her down aft to trim her out more.
Q. Do you recall the sequence of the loadings of the hatches on July 7, 1965, that loading?
A. I don't remember, no.
Q. You have figures indicated there, 300 in No. 20 hatch. Do you know when that went in?
A. Undoubtedly it went in first.
Q. It went into 19, 18, 17 and worked its way forward?
A. Yes.
Q. Now, there is a blank in the same column opposite Hatch No. 13.
Does that mean you skipped that, or what would it imply?
A. That it was skipped.

Q. So some places you skipped, where you actually skipped a hatch, and there is no word "skipped" in there?

A. No.

Q. They never do that?

A. No.

Q. Now, in the next column over, we have 100 in Hatch No. 8. There is a 200 crossed out, but there is a 100 above it. What does that stand for?

A. He probably was attempting to order 200 for that hatch, and just cut her down to 100.

Q. And 50 in No. 9; is that correct?

A. Yes.

Q. And 30 with a sort of a circle around it, and you have the word "Finish."

What does that mean? Is that where you finish up?

A. Yes.

Q. By putting 30 pounds in Hatch No. 10?

A. Right.

Q. Now, you have drafts up in the upper part of the paper. That was the draft for this particular loading.

Q. The finish draft actually aboard the vessel?

A. Yes. That was copied out of one of the loading books.

Q. You have 25 foot 8 inches. Would that be forward or aft?

A. That would be forward.
Q. And 25 foot 8?
A. Midship.
Q. And 25 foot 10?
A. Aft.
Q. And the total tonnage would be --
A. -- 24,423 gross tons.
Q. Now, on the bottom, you have the figures 24,395 ordered?
A. Yes.
Q. What does that mean?
A. That means those are the figures that we had on what we ordered up.

In other words, we ask for so many tons to be ordered, and you write it down on a hatch next to the hatch coaming for the rig operator to look at.

That is how close the load come out. That is what we ordered and that is what we received.

Q. So you actually received more than you had ordered?
A. Yes.
Q. By some --
A. -- a few tons.
Q. 30 tons or something like that?
A. Right.
Q. Is that unusual, Captain?
A. Oh, no. You have to keep an eye on them.
Q. Is that pretty close, 40 or 50 tons?
A. Oh, yes. That is real close.
Q. Now, getting back to the month that you were aboard in 1975, and you say you loaded -- you had four loadings; is that correct, Captain?
A. Four loadings, yes.
Q. And I am talking now about the money in which you were on. Did you make up the instructions of how the vessel was to be loaded?
I realize the other mate had left some --
A. I followed his loading pattern out of his loading books and ships, what was left, what was left on board for the ship, the record kept aboard the ship, and they coincided with the ones in the back of the log book.
Q. Now, did you make up a sheet for the 1975 loadings as you have here?
A. I did, and I forgot it and left it aboard the ship.
Q. Do you recall whether you started loading 1700 tons in Hatch 21, skipped 20 and had gone 300 into 19?
A. These were increased considerably.
Q. But the sequence, would the sequence have been the same as you just showed us here?
A. The sequence was the same.
Q. Do you recall whether they had two loading belts as you did on this loading in '65?
A. Oh, yes. They still have the two loading, oh, yes.
Q. How about the ballast that you indicated?
A. The ballasting was the same.
Q. The same?
A. Yes, sir.
Q. You don't have any figures as to what the final draft was on any of the '75 trips?
A. Just what I told you.
Q. Just what you recollect?
A. Yes.

REAR ADMIRAL BARROW: Let's go off the record.

(Discussion had off the record.)

Q. Mr. Rajner, looking at Exhibit 91, the piece of paper we have here, if I gave you a similar loading from, let's say, another vessel, the same type of paper, could you tell what the sequence of loading, how much went into this hatch and in what sequence from the information that is on this exhibit? Could you reconstruct that?
A. It would be pretty hard to do that. I imagine it could be pretty close.
Q. But looking at this, I would not know, Mr. Rajner, whether you started loading in Hatch 21 or whether you started loading in Hatch 16; is that correct?
A. Oh, yes. It would be marked, your starting hatches are always marked.
Q. But is this marked to show which was the starting hatch, or is it something you remember?

A. That is my copy. This was just my copy. This would be marked "Start here," and it works up this way and the same way here (indicating).

Q. But this is not marked as a start here, anyplace here, is it?

A. No.

Q. So with me looking at this, I could not reconstruct that?

A. You couldn't tell.

Q. Are the records that are on the ship, to they indicate where you start and what the progress is?

A. Yes, sir.

Q. Usually they do?

A. And also at the dock, they could tell you at Silver Bay.

Q. Well, at the time of the four trips that you had where you went into Silver Bay, just during the month you were on, can we go to the loading dock and find out the sequence that the Fitzgerald was loaded on those four trips?

A. They might be able to tell you. I wouldn't guarantee it.

Q. Do they know that you are putting, let's say, 1700 tons into Hatch 21?

A. Well, you would think they would keep some kind of a record of it.

Q. But you don't know?
Q. All right. I would like to direct your attention to the month you were on the Fitzgerald. You loaded at the same dock, is that right, at Silver Bay?

A. Silver Bay, yes, sir.

Q. How much water is in Silver Bay, Captain?

A. How much water?

Q. Yes. How much water? How deep is the water?

A. Well, it is over 30 feet that I know of.

Q. How do you know that?

A. Well, that's just what the dock tells us from -- I imagine Mr. McCarthy took a sounding at one time back there.

He said, "Don't ever get her more than 30 feet, deeper than 30 feet aft," and we kind of watched through the loading that we didn't. That was over the stern.

Q. Do you have a sounding line or something that you can measure the depth of the dock? Do you do this in the normal course of events?

A. Occasionally we do take a sounding of the thing ourselves by hand, but I did not take any soundings.

Q. Do you recall a specific conversation that Mr. McCarthy told you that it was all right up to 30 foot?

A. That is correct.

Q. And that was the month that you were on there?

A. Yes, sir.
A: Yes, sir.

Q: How about the discharging docks? Where did you go to discharge during the four trips?

A: Toledo, Ohio, yes, sir.
Q. What dock was that?
A. I believe they all went to C & O dock.
Q. Do you know how much water is at the C & O dock?
A. Not too much, but most of the time we were laying off of the dock.
We seemed to be plowing our way in there every trip.
Q. When you say laying off, you mean that there was some shoal water in between where the vessel came in and the dock itself?
A. Yes, I would say it would be the pellets that fall off the rigs when they unload right at the base of the dock that might keep you out sometimes as much as 12 feet off of the dock.
Q. Can you remember specifically how far off of the dock you were at C & O pier?
A. One particular trip, the water was down and we were out considerably. Now, it was even more than 12 feet.
Q. 12 feet?
A. More than 12 feet. Aft it was 12 and forward, she was way out. She must have been around 24 feet off. She wouldn't come in until they started pulling some cargo on her.
Q. Do you recall what draft you lightened up to before she did come in?
A. No, I don't. I went home, sir.
Q. How was the ship able to maneuver into the dock or did it have to pretty well push its way in?

A. Under our own power, we got in okay.

Q. It had to push its way in, though?

A. Not too much difficulty, but she moved in.

Q. When you say the water was low, what would cause the water to be low at the C & O dock?

A. We had westerly winds, southwest and west, out of Toledo. The water goes down considerably.

Q. When you say considerably, would you say a foot or more or how much?

A. It would have to be at least, I would say, a foot down, at least, or maybe more.

Q. What is it? Pellets dropping off and just piling up a little spot in between the ship and the dock? Is that it?

A. That is correct, right.

Q. This is taconite you loaded, right? This is taconite?

A. Yes, sir.

Q. What kind of a cargo is that? What kind of a cargo is that? Is that a stable cargo as far as keeping its angle of repose, the way it is loaded, or is it shifted easily?

A. I haven't seen any shifts all the time that I was there, but there have been trips on the reserve, when I was there, that I could hear them, the pellets, moving
around at times when she rolls.

Q. Would this be in a heavy sea?
A. Just going through the tunnels, you can hear them touching the side in the cargo holds, but not to a real extreme.

Q. Was this in a heavy sea, a heavy seaway of some kind?
A. In a heavy sea, yes, sir.

Q. Did you ever notice during one of those times when you did hear it shift, when you removed the hatches, could you tell the difference in the angle of repose of the cargo from the time you had loaded it until the time of the discharge?
A. No.

Q. Did it seem any flatter or did it seem any flatter to you?
A. There is a possibility that it would have been a little bit down, you know, from what it used to be. It is bound to settle some.

Q. Have you ever had any taconite shift on you when you were under way?
A. Not on this vessel.

Q. On any vessel?
A. Well, one particular trip it shifted, coming out of Escanaba, but we only took a couple of inches list on it. One pocket, the rig didn't hit the forward part very good,
and we got in a little sea and she pulled in that one side and she took a two-inch list that I know of.

Q. In loading taconite, and I am talking about the Fitzgerald, did Mr. McCarthy have any kind of rule for the cargo to be smoothed out or evened out, or did he leave any instruction along that line?

A. Well, that is a general standard rule to spread your cargo so you won't have that.

Q. Is this something that the mate tells the loading people or how does that work?

A. We usually tell them to spread it out.

Q. Spread it out?

A. Yes, sir.

Q. Do you know if Capt. McSorley had any procedures that he wanted the mates to follow in this regard, as far as spreading the cargo?

A. Well, as far as the cargo, I am sure that he would want it spread out, evened out, as good as you can get it.

Q. But you don't know of any specific instructions?

A. None, no.

Q. How about the Oglebay-Norton Co., do they have any specific instructions about spreading out the cargo?

A. What is this?

MR. KEENEN: Ask him.

THE WITNESS: Sir?
By Capt. Zabinski:

Q. Are there any company, Oglebay-Norton Co., instructions about spreading out the cargo when it is loaded, this taconite?

A. Well, that is one of the general procedures that would go with loading of a ship, to spread the cargo as evenly as possible so you won't have any empty pockets.

Q. How old are you, Mr. Rajner?

A. 50.

Q. How about repairs, were any repairs done the month that you were on the vessel?

A. Repairs, that radar scanner that was replaced.

Q. Where was that done?

A. In Toledo, I believe.

Q. Were there any hold repairs done?

A. Hold repairs?

Q. Yes.

A. None.

Q. Any welding, burning, modification?

A. There was a little bit in the cargo hold at Indiana Harbor.

Q. Do you know what cargo hold?

A. That would be No. 1, No. 1 on the starboard side.

Q. No. 1 hatch or No. 1 cargo hold?

A. No. 11 hold, right in the vicinity of 5, No. 5 hatch,
because one of the buckets came into the side. It punctured a hole in there. It required a patch of about 2 x 2, two foot square patch, and it was a temporary patch.

Q. Well, what made it a temporary patch?

A. Was it welded completely?

Q. It was welded completely around, just a plate put over a hole.

Q. I see. Any other repairs done?

A. There was at that same dock -- now I am trying to think. There was two other spots that they had to weld on these side tanks and I believe one was aft and around the vicinity of 17 hatch. That was around a little dink from the corner of the bucket that punctured a hole just enough that it would not require a patch, but it was fractured.

They did it by welding.

Q. Any others?

A. It did not leak.

Q. Any other spots?

A. No.

Q. You indicated two spots and one was in the --

A. That other crack, there was another close to that No. 5, close to No. 5 hatch, starboard side. That would be lower. That big patch was up high.

Q. Any other welding repairs done during that month?
A. No, that's the only ones that I know of, sir.

Q. Do you know of any repairs or did conversation with the mate or the master or anyone indicate that any other repairs had been done prior to arrival aboard the vessel for relief?

A. No. The only thing that the captain mentioned was that the rigs have bumped the coamings a little bit and maybe they might have bumped, but I couldn't say what the damage was.

Q. Did he indicate where?

A. No, he did not.

Q. Do you know what coamings may have been affected?

A. No, sir.

Q. Capt. McSorley told you this, did he?

A. Yes.

Q. Are you talking about coamings? He was talking about hatch coamings?

A. Hatch coamings, yes, sir.

Q. Did he indicate what port it may have happened?

A. They did have a trip -- I can't say what port it was done in, no, sir.

Q. How can we find out?

A. Probably through the office. They can tell you any of those bucket jobs where they would bump you. It would be Detroit or Cleveland or Ashtabula.
Q. Do you make a report to the company when you have
this type of damage?

A. If it is serious enough, yes.

Q. From what Capt. McSorley said, was it your impression
that this was a serious thing?

A. We always keep an eye out when they go to these
docks because you could leave that dock and I have seen it
happened once before, you leave that dock and you have
this damage and you don't notice it until later on and
then of course it is pretty hard to say, "Well, you done
this damage to us," you know.

Q. Well, do you notify the dock that they have damaged
the coamings?

A. We do notify the docks immediately, yes, and they in
turn make out a report and we make out a report on the
ship also, the damage report.

Q. A damage report. Where does that damage report go?

A. That goes to the Cleveland office.

Q. To the Cleveland office?

A. Capt. McSorley indicated that there were coamings,
more than one. Is that your impression?

A. Well, they may have been damaged. They bumped them,
you know, or maybe knocked only the paint off or something
like that. I don't know how much damage there was.

The damage must have been negligible because I didn't see
anything that was really --

Q. But if Capt. McSorley mentioned it, he certainly
wouldn't mention damage to a hatch coaming if the paint
was knocked off, if that's all it was, would he? Do you
think he would?

A. Well, I don't know. He was just cautioning us to keep
an eye out, you know, to keep an eye on those coamings because it
don't take much to bend one out.

Q. Now, let's get back.

Did the captain indicate that some rigs had bumped the
coamings or did he indicate for you to be cautious about
coaings being bumped?

A. He was more or less cautioning us to keep an eye on
those coamings.

Q. It is your testimony, then, that the captain wasn't
indicating to you that the coamings were actually damaged?

A. No, no.

Q. Did you examine all of the coamings during the month
that you were aboard?

A. Yes, sir. It was all nice and straight.

Q. All nice and straight?

A. Yes, sir.

Q. How about the clamps on the hatches?

A. The clamps?

Q. Were they all right or in good condition?
The clamps were in good condition, yes.

We have indications that there was a spar deck inspection conducted in Toledo.

Do you know anything about that?

No, it must have been done after I was there. I don't recollect it.

If a spar deck examination or inspection were made during the month that you were on board, would you, as chief mate, know about it?

I would think so, yes.

Would you go along with the inspection party, if they did?

If I was aboard, I probably would, but Mr. Feldtz, I asked him there one time if he wanted me around and he said, "No, go on home." This was on another ship.

Well, during the month, I am talking about now when you were on the Fitzgerald, if there were a spar deck inspection, would you know about it?

I am pretty sure I would.

Would you go along with them as a rule, as a general rule?

If I was on board, yes.

The condition of the clamps or the hatches, what was the condition of the clamps?

The condition of the clamps were good.
Q. Did you make a special inspection or just a casual observation, or what do you base that statement on?
A. Well, I am basing it on the fact that these clamps down all of the hatches, and I have watched them several times, when they put them on, they snapped. They snapped on good. They are a snap on tight clamp.
Q. If there were some clamps that are defective, are you notified about it? Do you put them on a work list or something?
A. They would be on the work list; yes, sir.
Q. Do you know if there were any clamps that were malfunctioning on the work list in the month that you were there?
A. No, not that I know of. I can't recall any.
Q. Do you know if there were any repairs made to any of the radios during the month that you were aboard and the month that you were there, any repairs to the radio?
A. In the radio?
Q. In the radio.
A. We did have a radio man aboard installing that, the new type of phones.
Q. You indicated --
A. I don't remember any faulty radio outside of that.
Q. You indicated in your testimony that the equipment
was installed and then you were having problems with it:

is that right?

A. They did later on, yes.

Q. You indicated it was subsequently repaired; is that right?

A. Yes.

Q. So did you know whether they came aboard the second time to repair it or adjust it or whatever was necessary?

A. I don't know just what they came aboard for. That was the dial phone. It is a new type.

Q. Did you use that to talk to other ships, the dial phone?

A. No.

Q. What was that used for?

A. For shore calling and getting your weather in.

Q. For getting your weather in?

A. She was a weather ship.

Q. The radio that was operated off of batteries, was it AM or FM, Captain, as far as you know?

A. Both, we had one of each.

Q. Were there any tests conducted on those battery operated radios?

Were there any tests?

A. Yes, sir.

Q. And were there any procedures?

A. Occasionally, yes.
Q. When you say occasionally, do you mean once every week or once a week or once every couple of weeks?
A. No, I would say that on the battery sets they might get about three or four a week.
Q. Three or four calls?
A. Yes, test calls, calls on them.
Q. Did you test it yourself?
A. I don't recall if I had or not, sir.
Q. Did you ever use the battery AM set?
A. The battery AM?
Q. The month you were on?
A. I don't recall.
Q. How about the battery FM, did you use that one?
A. I used that.
Q. The battery FM?
A. Yes. We used that quite a bit. They use that in the rivers and stuff like when they go through the St. Mary's River, you can keep one channel open on 12, and you can listen to all the traffic going through the Soo and the other one is on 16.
Q. So you would use it in the normal communications?
A. Yes, sir. I am pretty sure he used it on the other ships, too.
Q. On the hatches, you indicated if the weather was good that only every second clamp -- the procedure was every
second clamp would be put on?
A. Yes, in good weather.
Q. Was that true for the month you were on?
A. Yes, they did that.
Q. In other words, if the weather reports --
A. If it was permissible.
Q. If the weather reports were good, the ship sailed
with every second clamp on?
A. Yes.
Q. How long would it take you to put the other clamps on
if you had to?
A. As I explained before, you could put them all on
in less than an hour.
  Do you mean the remainder of the clamps?
Q. The remainder of the clamps.
A. Well, if you get three or four men out there, it
would be just a matter of a few minutes, 20 minutes, say.
Q. If you had only one man, it would take you quite a
bit longer?
A. Yes.
Q. If you were taking seas on the fore deck, could you do
it?
A. It could be a problem.
Q. Do you know if any of the hatch covers were missing
gaskets, or was there any deformity in any of the covers?
A. No, they were not missing but there were two that were sprung.

Q. Which ones were they?

A. I believe it was No. 3 and right in the vicinity of the 20 hatch.

Q. Which one?

A. 20, but they were not sprung enough where they couldn't be clamped down.

Q. They could be clamped down?

A. They could be clamped down. Those were to be repaired, which was on the winter work list.

Q. Do you know what the distribution of the life jackets inside the deckhouse was, the distribution of life jackets inside the deckhouse?

A. Everybody had a life jacket or two in the room.

The pilot house had three or four, and the engine room had life jackets in the box.

There were life jackets on the boat deck and on both sides in the boxes.

All the extras were in there. There must have been, gosh, I don't know; I will bet there were over 25 of them in there.

Q. And your testimony is that the Fitzgerald operated with the vents open?

A. As far as I know, sir.
Q. On the trips you were on during the month you were on?
A. On the month I was on, they were open.
Q. Loaded and light?
A. Loaded and light, right.
Q. Do you know if Capt. McSorley had any special instructions about this?
A. No.
Q. These were a screw type vent, were they?
A. Screw type; yes, sir.
Q. On other ships, what is your experience with vents?
Do you keep them open or closed?
A. I was on the Steamer Ashland, and the captain over there, this was the only vessel that I could recall that they screwed down the vents every trip that we were loaded, and it was logged in the log books, the closing, and the date and the time was initialed by the mate on watch.

They were opened when we got to the rivers. He would open them back up in the rivers.
Q. Do you have any opinion on whether the vents should be opened or closed?
A. It is a tossup. It could be a hindrance, and it could also serve you in a way.
Q. How could it be a hindrance.
A. Well, say you did have water in the tank and you had to pump it out, wouldn't that block off the vent, slow up
your pumps?
   It might, or it might collapse your tank.
Q. How about the ballast system on the Fitzgerald?
Did you have any problems with deballasting any of the
tanks while you were on there?
A. Never, sir. That boat pumped out terrific.
Q. It had good pumps?
A. The pumps were good; yes, sir. She really pumped.
Q. And you had no difficulty ballasting?
A. No, sir.
Q. Or deballasting?
A. No, no problems at all.
Q. How about the King gauges? Do you know what their
condition was?
A. I didn't hear you, sir.
Q. The King gauges, what was the condition of the King
gauges?
A. Those are the gauges down in the engine room.
There were no problems there.
Q. Were they all working to your knowledge?
A. They were all working, yes, sir.
Q. During the month you were on, what was the procedure as
far as sounding the tanks by hand, the ballast tanks by
hand?
A. They were sounded twice a day that I know of when we
were loading by hand, and if you could not do it by hand, why, they took them off the gauges.

The watchman usually at night or the oiler would read them right down there and report to the pilot house.

Q. Do you as mate keep track of those soundings that are obtained, or who does?
A. Just for that particular trip it would be marked in the engine room, and it would be marked in the pilothouse on a chalk board.

Q. Let's say the vessel was, a hypothetical question, let's say the vessel Fitzgerald was making two inches of water in a particular ballast tank, two inches a day.

Would you know about such a condition?
A. We would know about it, definitely.

That would be logged as a change on our sounding board.

Q. On the sounding board on the bridge?
A. Yes, on the bridge and also in the engine room.

Q. Now, during the month that you were on, you kept track of the soundings, did you?
A. The soundings were kept track on that board day by day.

Q. Do you recall any changes or any levels of any ballast tank while you were aboard?
A. No, sir, no changes.

Q. Were the bulkheads between the ballast tanks tightened down?
A. As far as I know, sir.

Q. Were there any leaks between the ballast tanks and the cargo hold that you know of?

A. Except those that I told you that were patched. There was no leakage there after they patched them.

Q. During the month that you were on there, did you test the wing walls of the cargo to see whether they were tight when ballast was in there?

A. No, I had not.

Q. Could there have been leaks in the wing walls without you knowing about them?

A. Where is this at?

Q. The boundary between your cargo hold and your ballast tanks.

A. Not that I know of.

Q. If there were leaks in that boundary, would you know about it?

A. We would know about it.

Q. How would you know?

A. They would probably squirt out, I mean, when you are light. Is that what you are referring to, to the side tanks?

Q. Yes. It would have squirted out?

A. I imagine it would, if it had a leak.

Q. But the hatches are all dogged down? How would you
A: Well, when you take them off at the docks, you would be able to see the excessive water in the cargo hold. That would be before we started loading.

Q: Do you recall seeing any such a condition?

A: No, sir.

Q: Not in the month you were aboard?

A: None.

Q: I would like to go back to this springing just a little bit.

Is there any procedure or was there any procedure on the Fitzgerald in the month that you were on to check the vessel down or in any way take any action to reduce the springing action?

A: The captain says to reduce speed.

Q: Reduce speed?

A: Yes, and to notify him, you know, check her down first and then notify him.

Q: You say check her down. Would it be a few reclosures?

A: You could cut her back 20 or 30 revolutions.

Q: You could just do it over the phone?

A: That is right.

Q: If we were to look into the wheelhouse of the Fitzgerald where she lays now on the bottom and we saw the telegraph full ahead or something, could we tell how fast,
how many revolutions she was making?
A. On full speed?
Q. On full speed.
A. That would be pretty hard to say.
Q. Do you understand my question?
A. You want to know how manyrevs she does at full speed?
Q. With the telegraph on full speed ahead.
A. I don't know if she does 110 or --
Q. But do you change the telegraph when you check her back 20 or 30 revolutions?
A. Well, they have a revolution counter up in the pilot house.
Q. But I am talking about the telegraph.
A. There is a mark on the chadburn.
Q. But on the chadburn you have full, half and slow; is that correct?
A. That is right.
Q. Now, when you check her down and you are going full speed ahead and you call the engine room to check her down 20 rpm’s, do you alter the chadburn to indicate half speed?
A. If we are checking down a half speed, yes, sir.
Q. Let's say you are checking down some revolutions between full and half speed. How would you indicate that?
A. We would just call them on the phone.
Q: How many revolutions would you have to check her down before you checked down to half speed, if you know?

A: Half speed, let's see.

Q: Half speed would be 70?

A: I think her half speed is right around in there. It might be in the neighborhood of 50 revs, 60 rpm's.

Q: And when you check her down to 50 or 60 revs, you would then put your chadburn on half speed ahead?

A: Yes, sir.

Q: Captain, you have been sailing fairly regularly on the Great Lakes from what I gather?

A: Yes, sir.

Q: I would like for you to give me your opinion on the effects of the sea near a shoal area. Is it different than it is in the deep water? Let's say we have a sea, a 10 foot sea, and in the vicinity of a shoal.

Would you expect to be higher, or what would be your observation from all your experience on the lakes?

A: I would say that the seas would be higher in the shoal area.

Q: Very much higher, Captain, would you say?

A: Well, I would say considerably, yes.

Q: Is it a problem to handle the ship in the area of a shoal, this steepening?

A: I didn't quite get that question.
Q. Is it a problem to handle the ship in the vicinity of shoals in rough water?
A. Well, they do have a tendency, if you are close, they are going to squat and do everything else. There is a certain degree of difficulty in handling the ship.
Q. Can you get more weather damage from this type of sea?
A. I would say you would, yes.

CAPT. ZABINSKI: I have nothing further.

EXAMINATION

By Rear Admiral Barrow:

Q. Mr. Rajner, have you ever sailed as master of a Great Lakes vessel?
A. No, sir.
Q. When did your experience start on the Great Lakes?
A. When did it start?
Q. When did you start sailing on the Great Lakes ore carriers?
A. Well, sir, I was shipped out as a deckhand in 1941.
Q. 1941?
A. Yes, sir, and I sailed for about eight months here on the Great Lakes then, and then I went out as a merchant marine when I was 17.

I sailed as a merchant marine for about four years, and I came home and raised a family for about 10 years. I got laid off my job at Libbey-Owens-Ford.
I used to work there for about six years, and then I drove a limousine and so forth out of the airport. I was having a tough time, so I decided to go back to the sea and started sailing around the Great Lakes in 1957.

Q. As a mate at that time?
A. At that time, my rating at that time, sir?
Q. Yes, sir.
A. An AB, I was an able bodied seaman.
Q. When did you start sailing as a mate?
A. I got my license, it was around '58, around '58 that I got my license. I was just doing temporary jobs, because on account of the shipping industry, they were getting rid of the older ships and reducing the forces here considerably.
So I didn't get a steady job until 1965 on the Fitz as third mate.
Q. As an AB or deckhand, did your duties incorporate any work on maintenance of hatch covers and vents and things of this sort?
Was there any routine of any kind that you worked with?
A. On the Fitzgerald?
Q. On any of the ships that you sailed as a deckhand or as an AB?
A. Working on the vents, on the vent caps?
Q. Vents and caps and hatch covers?
Well, yes. I have worked through the wintertime repairing the ships and the boilers.

Q. What sort of routine work on the ore carriers is accomplished as far as the hatch covers, as a means of lashing down the hatch covers?

A. About the only thing they do there is take care of the clamps and make sure that they are freed up and work properly. There is not too much.

Q. How about the air vents themselves? What kind of routine maintenance is accomplished on those?

A. On the air vents, they have been removed already to put grease, you know, wire rust them and grease them so they turn freely. That has been done, but I don't recall doing any on the Fitz.

They did have it off when we cleaned the tanks. They remove one vent tank when they clean the tanks to get down into the tanks.

They were doing that, and they finished that job up and I was there.

Q. Is there any particular time that the vent covers, the mushroom caps on the vent pipes are maintained?

Is there any routine to it?

A. No, sir.

Q. You have some substantial experience on the ore carriers on the lakes, and you have discussed the phenomenon
of springing.

On the ships that you ever sailed on on the lakes, where you had seen this effect, have you ever been concerned or were you ever worried about this?

A. I sure was.

Q. All right. You have been?

A. Sure. Everybody would be. It is a funny feeling to walk down the ship and have that ship springing.

Even if you go down the tunnel, it is a long way down to the other end.

Q. Were you concerned about that?

A. Anybody would be. You have something moving underneath you, and you really are not sure of what you are standing on, but after a while, you get used to it. You just forget about it.

Q. After you get used to it, are you still worried about it, or are you concerned about it?

A. I don't lose any sleep over it; no, sir.

Q. Have you ever discussed this phenomenon with other crew members on the ships you have been on?

A. With other ships? They have always brought it up once in a while. It is something that is discussed all the time.

Q. Specifically with regard to the Fitzgerald, did you ever have any discussions with Capt. McSorley about the springing characteristics of the Fitzgerald?
A. No, sir, none.

Q. Did you ever hear him at any time express any concern over the Fitzgerald and its springing?

A. He never said anything about it.

The only thing he would say if she ever gets to springing too much to just check her down. He would say, "Don't hesitate to check her down."

Q. When he discussed that with you, did he indicate any worry or concern other than just giving you an instruction on how to handle it?

A. No, sir, that's all he told me.

Q. Specifically with regard to the last period when you were on there, 1975, were you aware of any damages to the vessel about striking a pier or striking a lock wall or anything of that sort?

A. No, sir, none at all.

Q. Nothing occurred during that period?

A. No, sir.

Q. Were you aware of any machinery problems with the automated propulsion system?

A. No, sir.

Q. You have indicated that after you came aboard that Capt. McSorley told you about some hatch coaming damage or the possibility of some and to be aware of looking out for this sort of thing.
How about other components of the ship which are also susceptible to damage, the springers inside the square of the hatches?

Did he give you any instructions about that sort of thing?

A. No. He just said to keep an eye on those rigs, because those are the ones that do most of the damage. It is not the Hewletts that do the damage; it is the buckets, the bridge cranes.

Q. They also do damage to the stringer plates inside the hatches?

A. Well, I imagine they could.

Q. Well, you have indicated that you kept a good lookout for coaming damage, and I asked you whether you paid the same kind of attention to the stringer plates which are inside the hatch coamings, and presumably they could be damaged in the same sort of way?

A. Now you are talking about the stringer plate that comes down underneath the coaming?

Q. Under the coaming but inside.

A. By the header part.

Q. Part of the deck's plating which extends inside the hatch?

A. That's all. Any damage would be reported.

Q. You made no special examination of that particular
part of the vessel after loading or unloading?

A. Well, we look completely, not just the hatch coamings, we go all around the hatch and look the whole thing over for whatever we could see, and any visible damage would be reported.

Q. You don't recall any damages of that kind to the coamings or otherwise during the month that you were there?

A. No, sir.

Q. You have indicated, in answer to another question, that your impression of Capt. McSorley was that he was the type of man who discussed problems that he might have on his ship with others.

You, of course, must be aware that the Fitzgerald initially reported some problems at approximately 3:30 in the afternoon, 1530, and that subsequently somewhere around 1910 or 7:10 in the evening, I think, and there was very little conversation with anybody other than the original report that came in that he had lost a couple of vents and some vents laying over or missing, but yet from all the evidence, quite suddenly the vessel sank.

Would you have any idea how this could come about without someone being apprised of the difficulties that they were having?

A. No, I wouldn't have no idea. Just from what I heard here from the hearing, and what you read in the
newspapers, and that’s about all.

    Capt. Cooper, his statements kind of clearly said just about what happened.

Q. But you have no opinion of your own as to how you could go from an initial report of some damages, which apparently were being handled, to suddenly a vessel disappearing, sinking very rapidly?

A. It had to be something fast.

Q. All right.

REAR ADMIRAL BARROW: Counselor?

MR. MURPHY: I have no questions.

REAR ADMIRAL BARROW: Mr. Murphy, did you say you didn’t have anything?

MR. MURPHY: I said I had no questions. I’m sorry.

REAR ADMIRAL BARROW: The Board?

CDR. LOOSMORE: Yes, I have a couple.

EXAMINATION

By Cdr. Loosmore:

Q. Mr. Rajner, how long was the Reserve?

A. I had a full season on the Reserve.

Q. Yes, but how large a ship was she?

A. How big was she?

Q. Yes.

A. 620 to 640. I would say 640, right in that area.
Q. When you were talking about your instructions from Mr. McCarthy about the loading dock, you said, "Never go deeper than 30 feet."

How deep did you get during loading?

A. How deep?

Q. What would be the deepest draft that you would ever record during loading?

A. Geez, I don't know. I haven't seen anything.

Q. Would it ever be deeper than your final draft?

A. Never that I know of.

Q. Why would he tell you not to go deeper than 30 feet?

A. That's his back aft.

Q. That's what I mean. Did your after draft ever get any deeper?

A. That's all he wanted was that after draft not to go any deeper because you might possibly do some damage, or I would imagine that's why.

Q. When you were loading, did your after draft ever go any deeper than your final mean draft?

A. At that point it did, sure. It goes close to 30 feet, the back aft. That's at the dock.

Q. You got close to what?

A. Close to 30.

Q. What would your forward draft be when that happened?

A. That would be hard to say.
Q. What would you guess at?
A. In the neighborhood of 20 feet, 25 feet.
Q. At what stage of the loading would you be at when this happened? Would it be the beginning, end or middle?
A. About the middle.
Q. In answer to one of the questions, you said there was — a two-inch list was the word you used.
   What do you mean a two-inch list? Where do you measure the two inches?
A. Indicating on our indicator, a two-inch list. That would be a two-inch difference from one side to the other.
Q. Then if you had a starboard list, would the two inches indicate a difference in height of the gunwales, port and starboard?
A. Oh, yes.
Q. Of two inches?
A. Two inches, yes.
Q. Would a two-inch list be a big list on the Fitzgerald?

MR. MURPHY: I object to that question. The testimony was that that was not on the Fitzgerald that that occurred. That occurred on a different vessel. Any inference to the Fitzgerald I would object to.

THE WITNESS: That wasn't on the Fitzgerald.
REAR ADMIRAL BARROW: If you would address your objections to me, I will take care of it.

MR. MURPHY: I'm sorry, Mr. Chairman, I should have.

REAR ADMIRAL BARROW: Was the question phrased in terms of the Fitzgerald?

CDR. LOOSMORE: Yes, sir.

REAR ADMIRAL BARROW: I think we can strike this from the record and refer back to the specific platform that I think he mentioned the list was on.

Off the record a moment.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

By Cdr. Loosmore:

Q When you were talking about the two-inch list, what vessel were you referring to?

A It was the Steamer Pernell.

Q Did you ever observe a list on the Fitzgerald at all at any time?

A Not of any seriousness.

Q Any list at all?

A Only at loading.

Q All right. Did you observe a list on the Fitzgerald during a loading situation?

A Oh, yeah, when you are loading. It is one side or the
other. You keep working back and forth. Those rigs work from one side to the other. They work outboard and inboard and this one is drifting this way and that way and filling in.

Q. Approximately what was the largest list that you observed on the Fitzgerald on the month that you were aboard?

A. Oh, six inches, maybe, a six-inch list.

Q. With your experience on the Fitzgerald, would a six-inch list be a large list for a vessel like that?

A. For her, yes, sir. I would say yes, it is a good sized list.

CAPT. ZABINSKI: I didn't get that answer.

THE WITNESS: A six-inch list is a pretty good list. It is not a great list, but I mean, it is a good start.

By Cdr. Loosmore:

Q. If you had a six-inch list at sea, would you notice that?

A. Absolutely. I would say you would.

Q. In your experience on ships the size of the Fitzgerald and so forth, could you tell me when you would begin to notice a list, what kind of a list you would call noticeable?

What I am getting at, you seem fairly certain that
you would notice a six-inch list. Would you notice a
three-inch list?

A. Well, I wouldn't be able to say. I imagine I would, yes,
in the pilot house. I am always looking out those windows.
All you have to do is stand up and look from one side of the
pilot house to the other and you can tell if you are listing
real easy by the horizon on the port and starboard.

You can tell right away.

Q. Do vessels commonly operate with any list at all?
In general, do lake ore carriers operate with any list?
A. Oh, yeah, they operate without a list.

Q. With a list?

A. It is not the standard on any boat to operate with a
list, not that I know of, no.

Q. At any time when you are aboard this summer, did
the Fitzgerald operate with any noticeable list?
A. None that I know of, not noticeably, no.

Q. Do you think you would have been able to notice a
two-inch list on the Fitzgerald during the month that
you were aboard?
A. Two inches would be pretty close. You would have
to have maybe a little more.

Q. All right. Concerning your testimony of operating
vessels, not necessarily the Fitzgerald, near a shoal,
in your experience, would there be any reaction of the
vessel? Would the vessel itself react in any way to the fact of operating near the shoal?

A. Like I stated, she might tend to squat a little more. She might get cranky. Her steering might be a little -- take a little more wheel one way or the other.

That's possible. She might even vibrate.

CDR. LOOMIS: Thank you, Mr. Rajner.

That's all I have.

REAR ADMIRAL BARROW: Capt. Wilson?

EXAMINATION

By Capt. Wilson:

Q. You mentioned that you could discern a list when under way because of your ability, as you notice the two horizons and the difference, is that correct?

Could you tell me how much list you feel one of the large vessels, somewhere in the 650 range or so, such as the Reserve, the Fitzgerald, some of the others that you have been on, how much of a list would you be able to discern in the pilot house if you were not able to view a horizon such as in bad weather?

A. That's pretty good. That would be hard to discern.

I couldn't give you a good answer to that. You could usually tell a list the way the vessel is, the way the angle of the floor is sometimes on the deck. Sometimes when you are walking from one side of the pilot house
to the other, you can tell. You can just feel it.

You get the feel of the ship. You can tell if you are listing one way or the other considerably.

Q Yes, sir.

A I am not talking about a tiny list now.

Q That is correct. Now, can you give me any handle on what size list this would be that you would notice or discern without being able to view an horizon?

A Without viewing an horizon, I would say about a six-inch list you could really tell and be truthful.

Q So you would feel that it would be somewhere close to a six-inch list that you would notice?

A Yes, sir; right.

Q During your month on the Fitzgerald, of course, comparing this to the Reserve, did you notice in some of the shallower water, shallower water such as the rivers and, say, down through the St. Clair, Lake St. Clair, with fairly shallow water, did you notice a difference in feel and handling characteristics and so forth on the Fitzgerald from the Reserve, and otherwise, was the Fitzgerald a smoother operating vessel in shallower water or a little rougher operating?

A I thought she was smoother.

Q Smoother?

A Of course, it could have been the amount of
revolutions that are turned over going across the lake,
too. It all depends on the speed and the depth.

See, we ran probably much slower than the Reserve did
on account of her not loading as deep. The Reserve
would never go 28 feet.

Q At the time when the patches were put on the side slopes,
from -- I believe you said it was from bucket damage?
A Yes.

Q -- was there any discernible bucket damage in the
tank tops?
A The tank top itself, no. This is just into the side.

Q Just the side tanks, so the tank top was not wrinkled,
not buckled?
A No, sir.

CAPT. WILSON: That's all.

REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:

Q If Capt. McSorley had said to you the vessel has a
heavy list, what would that mean to you?
A If we took a heavy list in that sea that they was in?
Q Yes.
A It would either indicate two things: either a shift
in cargo or we were taking water, one of the two.
Q But when you say "heavy list," how many inches would a
heavy list be, or degrees?
A. A heavy list on her would be something. I don't know
what you would consider a heavy list.
I would consider any list dangerous, especially a
loaded vessel.
Q. I would say a six-inch list would be visible in a storm.
A. My question was, if Capt. McSorley said to you, "We
have a heavy list," how much list would you take that to be?
A. How much would I take it to be?
Q. Yes.
A. That would be hard to answer.
Q. It would be quite a bit?
A. It would be quite a bit; yes, sir.
Q. How about the month that you were on there, was there
any tank cleaning, any cleaning of the tanks going on?
A. Any what, sir?
Q. Cleaning of the ballast tanks, were they doing
any cleaning of the ballast tanks?
A. Yes, sir; they were cleaning tanks.
Q. You indicated that if they were cleaning ballast
tanks, they would take or leave one of the vent covers off,
is that correct?
A. They would take a forward vent cover off to put their
hoses down into the tank and then they would work aft
from there and one cap for each vent, I mean tank, was
removed as they worked in them and then they were replaced when they were completed.

Q. Did you do this at sea or in port? Would this be done at port or at sea?
A. This would be done at sea.

Q. At sea?
A. Yes, sir.

Q. Could you take those caps off all the way?
A. They were removed all the way, yes, sir.

Q. Just unscrew them?
A. You would have to get underneath to take the lock nuts off and unscrew it.

Q. Do you do that or did anybody do it in the month that you were there?
A. Just the one tank when I was there, sir. They were finishing up the No. 2 starboard.

Q. No. 2 starboard.

The rest had all been cleaned?
A. That was all the cleaning that was to be done, I believe, that year. That's what he told me, that he didn't intend to do any more cleaning.

Q. Mr. Rajner, we have you aboard the Fitzgerald just weeks before, and the fact that this has occurred, and to date we have recovered two lifeboats, two life rafts, 20 life jackets, 13 life rings, but no people.
A  Yes, sir.
Q  Why not, in your opinion?
A  The only thing I can say, sir, was that they were all trapped.
Q  All trapped?
A  Because he certainly had enough life-saving equipment on board her, as far as life jackets were concerned and life rings and buoys.
         She was well equipped as far as life-saving equipment and everything.
Q  We have had described the seas as 20 to 30 feet high with wind blowing from 50 to 70 knots.  Do you think, given those circumstances, a following sea, that you could have launched the lifeboats on the Fitzgerald?
A  That would be really tough, I think.  The seas would be coming up on the boat all the way up to the boat deck.
Q  It would smash the boat before you got a chance to get it under way; is that your testimony?
A  Pardon me, sir?
Q  It would smash the boat before you would get it under way?
A  I would think so.  You would have a hard time holding her with the frapping lights.
Q  Would it be unsafe for the crew to launch the boat?
A  I would say it would be.
Q. Would water be coming up on the boat deck?
A. It certainly would be unsafe.
Q. Why would the people be trapped?
A. Well, no doubt that they were all inside, and probably if something happened, if she broke in two or floundered or whatever she done, it happened all of a sudden and if she rolled, it would be the same thing. It would be fast. You wouldn't have had time to grab a telephone or anything.
I have been in a sea already, and I know, in a terrible roll.
Q. Thank you, sir.

REAR ADMIRAL BARROW: Counselor?

MR. MURPHY: No questions, Mr. Chairman.

REAR ADMIRAL BARROW: Thank you, Mr. Rajner.

I will now give you an opportunity, recognizing the purpose of the Board is to determine as closely as we can the cause of this casualty, if there are any things in your knowledge which have not been brought out by the questioning today, I will give you the opportunity now to bring forth to the Board any additional information that you have.

THE WITNESS: I don't have any right now, sir.

REAR ADMIRAL BARROW: All right. Thank
you very much, sir.

You are excused. You are cautioned not to discuss your testimony with anyone other than counselor until the conclusion of this investigation.

THE WITNESS: All right, sir.

REAR ADMIRAL BARROW: Thank you.

THE WITNESS: Thank you.

(Witness excused.)

REAR ADMIRAL BARROW: One thing further before we recess for the evening, and that is that Exhibit 91 for identification is, without objection, entered into evidence as Exhibit 91.

(Exhibit No. 91, previously marked for identification, was received in evidence.)

REAR ADMIRAL BARROW: Anything further this evening?

CDR. LOOSMORE: No, sir.

REAR ADMIRAL BARROW: We will adjourn at this time and reconvene tomorrow morning at 0930.

(Whereupon, at 8:00 p. m., the hearing was adjourned to reconvene at 9:30 a. m., Thursday, December 11, 1975.)
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DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

In the Matter of:
Marine Board of Investigation
Sinking of the SS Edmund Fitzgerald
on Lake Superior 10 November 1975

31st Floor Auditorium
Federal Office Building
1240 East Ninth Street
Cleveland, Ohio

Thursday, December 11, 1975

The above-entitled matter came on for further hearing, pursuant to adjournment, at 9:30 a.m.

BEFORE:

Marine Board of Investigation:

Rear Admiral Winford W. Barrow, Chairman
Capt. Adam S. Zabinski, Member
Capt. James A. Wilson, Member
Cdr. C. S. Loosmore, Recorder
APPEARANCES:

On behalf of The Oglebay-Norton Co.:

Jaeger & Murphy, by
John T. Jaeger
Thomas O. Murphy
Richard C. Binzley
2700 Terminal Tower
Cleveland, Ohio 44113

and

Arter & Hadden, by
Robert C. McCready, Jr.
1144 Union Commerce Building
Cleveland, Ohio 44115

and

Bradley, Eaton, Jackman & McGovern, by
Warren A. Jackman
135 South LaSalle Street
Chicago, Illinois 60603

On behalf of Cargo Aboard the SS Edmund Fitzgerald:

Ray, Robinson, Keenen & Hanninen, by
Roman T. Keenen
1550 Union Commerce Building
Cleveland, Ohio 44115
APPEARANCES (Continued):

On behalf of Seafarers' International Union,
James Pratt and John Poviach:

Ned L. Mann
Victor G. Hanson

On behalf of Marine Engineers Beneficial Assn.:

Green & Lackey, by
Merritt Green II and
Gerald Lackey
PROCEEDINGS

9:43 a. m.

REAR ADMIRAL BARROW: Let the record show we reconvened at 9:43. Counsel for Oglebay-Norton present at this time.

Cdr. Loosmore, call your next witness.

CDR. LOOSMORE: The Board calls Mr. Norman Lemley.

---

NORMAN LEMLEY was called as a witness and, having been first duly sworn, testified as follows:

EXAMINATION

By Cdr. Loosmore:

Q. Would you state your name, address and occupation?

A. Norman W. Lemley, 2724 - 18th Street, North Arlington, Virginia, 22201; Chief of Survival Systems Branch, Merchant Technical Division, U. S. Coast Guard.

REAR ADMIRAL BARROW: Mr. Lemley, our purpose is to investigate the sinking of the SS Edmund Fitzgerald on 10 November 1975, as you are aware.

There were no survivors to that casualty. We are, therefore, examining into all aspects of the Edmund Fitzgerald, including the life-saving equipment,
and that is the purpose of our calling you, to
talk about some of the things going on in your
particular branch.

I will ask you to answer as directly as possible
the questions put to you and to speak as slowly
and distinctly as you can.

We are trying to get a verbatim transcript of
these proceedings, so if you will just respond to
the question, we would appreciate it.

Cdr. Loosmore?

By Cdr. Loosmore:

Q. Do you hold a Coast Guard license or document?
A. No, sir.

Q. How long have you been Chief of the Survival Systems
Branch?
A. Since 1969.

Q. And had you previously worked in that branch or
been associated with it?
A. Yes, sir, since 1962.

Q. And what do your duties as Chief of the Survival
Systems Branch encompass?
A. Basically to direct the Coast Guard approval for life-
saving and fire-protection equipment from the commercial
vessel program and the boating safety program.

Q. Does that Coast Guard approval include preparation of
regulations of this equipment?
A. Yes, sir. Development and regulations and analysis of technology and development.
Q. Could you tell us what the present requirements for primary life-saving equipment were for the SS Edmund Fitzgerald?
A. Yes, sir.

Currently required is 200 per cent life-saving appliance or primary life-saving appliance, 100 per cent of which is in lifeboats. The other 100 per cent is in inflatable life rafts that float free.

Q. Would those requirements differ depending upon whether the Fitzgerald operated solely on the Great Lakes or operated the Great Lakes and the St. Lawrence Seaway?
A. They differ. I would have to -- I am not completely aware of the difference in the St. Lawrence Seaway.

Q. Would either of those differ substantially from that required if the Fitzgerald had been an ocean vessel?
A. Yes, sir. Had it been an international voyage vessel, it would be 200 per cent lifeboats, 100 per cent each side plus an additional 50 per cent float free inflatable life raft.

REAR ADMIRAL BARROW: When you are talking about "international voyage vessel," you are talking about an international voyage outside
of the lakes?

THE WITNESS: Yes, sir.

By Cdr. Loosmore:

Q. Could you provide the Board with information concerning requirements for a vessel such as the Fitzgerald operating in the St. Lawrence Seaway?

A. Yes, sir.

Q. Do you have a citation on where these requirements are available in the regulations?

A. Title 46 CFR, Part 94.

Q. Are there any alternatives which are available to the operator of a vessel as far as primary life-saving equipment is concerned?

A. Yes, sir.

Q. What are these alternatives?

A. We have indicated to the Ninth Coast Guard District and various ship building concerns that under the equivalency provisions of the regulations we would permit 100 per cent davit launch inflatable life rafts on each side, plus a motorized rescue boat that could be easily and quickly launched for man-overboard situations, as a substitute for required light boatage.

Q. Would that required light boatage that is used, then, include both lifeboats and life rafts?

A. Yes. That would be for the boatage. Then there is an
additional 50 per cent float free raft.

Q That would still be required?

A Yes.

Q What was the basis for this alternative or these alternatives?

A Review of casualty analysis and results of some research activities indicated that the time of the launch was limited and an increased capability was necessary and that the combination does improve the launching capability and one of the results of the research was that the launching was one of the weak points and that the davit launch raft is much simpler and much quicker.

It requires no one to stay on board to launch, so therefore everyone that is assigned to that station can get in and leave and it is much quicker and much simpler.

The other results of the R and D indicated that the survival crafts' improvements would be useful if they got into the water with the survival craft, and things looked pretty good; but the weakness was communications, early communications, and the launching portion of the exercise; and this seemed to address that.

Q You referred to research. Who sponsored this research?

A The Coast Guard.
Q. And who conducted it?
A. It was done in several ways, and the funding was
from different sources.

The Great Lakes Extended Navigation Season Program,
which was funded by Congress, which was a large program,
a part of it looked at the safety or crew safety or life-
saving activities, which some of that became a life-
saving program.

Under that, we did generally want to look at the
whole program and not just the pieces of equipment, but
basically to try to do an analysis of the life-saving
question.

The first study was basically to develop a weather
profile for the Great Lakes to see how climate and weather
would affect life saving.

The second major study by Batelle, which was funded
under the Great Lakes Extended Navigation Season Program
was an analysis of the requirements for life-saving
systems.

Basically it was a casualty analysis and developed
a computer program that could vary various solutions to
see how it might affect the life saving, the actual lives
saved in a casualty.

Again that was basically a study that indicated three
things were useful: communications needed to be improved,
and that began prior to the ship operation; better weather information, and the whole system of communications; better communications during the abandonment time, and then obviously, better communications after the survival craft was launched and waiting to be rescued.

So the total communications question seemed to be weak.

The other was launching systems needed to be improved because of the need, the short amount of time, and obviously that's a difficult time in any case. So it should be as simple as possible and as quick, and then just a general conclusion of a general improvement in the exposure protection, which lifeboats on the Great Lakes don't have lifeboat covers or exposure protection covers.

Q. And what is the anticipated end result of this research?

A. I would expect that, well -- and we actually have begun to rewrite the regulations, but it would permit this as an alternative, the raft, the davit launch raft.

The other alternative would be some improved, if the boats are selected, some improved method of launching.

This is going on not just for the Great Lakes but the total life-saving picture for an international treaty.

It has been redefined that no one remain on the boat when the boat is launched. Everybody could get in the boat
and launch it, where now on all ships, the system requires somebody to stay on board and then they must call down, so there will be a general upgrading of the lifeboat system. I think all boats will be covered.

The IMCO requirement will be a rigid pre-erected cover or one that can be erected quickly with no manual effort.

Now it requires a great deal of effort. This will probably become a treaty requirement, and it shouldn't be any problem from a manufacturing point of view.

Q. Is this research still an ongoing project?
A. Yes.

Q. When do you anticipate or expect it will be completed?
A. I would hope it is never completed.

We should always be reviewing technology and developing better solutions.

I think we are at a point that we can make the regulation changes now based on the research that is completed, but we are doing research on exposure and hypothermia. If one is to develop a treatment device, the feasibility of a treatment device, the rescue vessels would have, if they find a man overboard, they would have the ability to treat him effectively for cold exposure.

The other is to develop an education passage that would be used in the boating safety program and the commercial vessel safety program, and to tell people about
the problem of hypothermia and how to be prepared for
the problem; and the other is the continued development
of an exposure suit.

There are some other research programs going on,
one at the Naval Academy, to look at unique methods of
launching.

One is an inclined plane which a boat or survival craft
could be launched on either side.

The other is a float free concept. There is quite
a bit of research.

The Scandinavian countries have developed basically
a piece of the ship that will just come out of the stern
at an appropriate place and can be launched as a float
free type arrangement.

This will, I think, develop and become available,
this type of improvement. I think the research will
continue.

Q. Were you familiar with the type of lifeboats which
were installed on the Fitzgerald?
A. Generally, yes.

Q. Do you have any feel or has your research indicated
how long it would take to launch a boat from a vessel such
as the Fitzgerald?
A. As part of the program, we did an evaluation on the
Oreka an ore carrier, and the Oreka had a slide
evacuation system similar to an aircraft slide system. It had problems but it shows that the ideas are feasible, and Canada is looking at it for passenger vessel escape systems in Vancouver.

The other was the davit launch inflatable raft, which we did an actual exercise, and the other was existing lifeboat systems, the Frantz, Manila falls, but it did about 10 minutes in an actual trial from start of the alarm until the boat was ready, and that was on a perfect calm day.

Q. What vessel was this on?
A. The Joseph Frantz.

Q. Do you have any feel, or do you have any information concerning time to launch in a seaway?
A. In good weather, it could be 10 to 15 minutes, assuming everything worked right; but it could extend, I am sure, depending on the weather and time of day, night; so the absolute minimum of 10 minutes, if everything works perfect, and this parent system would require someone to stay on board or the whole group to crawl down.

So the time is varied, but it takes quite a bit of time.

Q. We have discussed alternative primary life-saving equipment. Is that at the option of the owner of the vessel?
A. Yes. We have indicated to an inquiry on new ships,
and we have existed people of existing ships, that they
could replace what is there with the alternative system,
which would provide probably a quicker response.
Q How long has this alternative been available?
A August 1974.
Q Do your duties as Chief of the Survival Systems
Branch include approval of other, if I may call it,
secondary life-saving appliances?
A Yes.
Q Are you familiar with the water lights which are
installed on life rings?
A I am familiar. My branch happens not to do the electrical
water lights, but we do do the carbide lights.
Q Part of the debris that was found from the Fitzgerald
included two carbide water lights, yet there has been
testimony concerning the failure to observe any lights
in the vicinity of where the Fitzgerald was lost?
Could you comment on that? Would these lights have
been visible or what are these lights for? Start there.
A The light on a ring buoy primarily is the man-overboard
marker and, in fact, in the SOLAS Treaty, it is referred
to as a marker and it is primarily the event of a man-
overboard situation, a ring buoy, and the light is thrown
over and it marks the position from which then they depart
the course to turn around.
It is not necessarily a life-saving piece of equipment; it is more of a navigation marker, if you will.

Q. Talking a little bit about the carbide water lights, how are these activated?

A. They are fixed to the ship in a bracket. When the ring buoy is thrown or when the ring buoy comes loose, it will pull a copper wire out of the can which opens a waterway into the carbide, into the container which has so much carbide and calcium phosphate, which when the acetylene gas is made by the entry of the water and the water hits the phosphate, it ignites the gas.

It is a self-igniting light. It is water-activated and it is self-igniting and burns, should burn about 45,000 candle power for about 45 minutes.

Q. Do you have visibility estimates of what 45,000 candle power would be?

A. It would be upwards of five or six miles, but you would have to look on a table to get the exact figure.

Q. Would that five or six miles depend on a clear night?

A. It would be a dark, clear night, which is defined in the formula as a night of a transmissivity of 70, which basically defines a dark, clear night, a medium background light.

Q. There are no electrical water lights recovered with the debris, but for information purposes, do you know
offhand what the brightness of one of those lights is?
A. It is a two-mile light, by the formula, or 1.75 miles
light. So you should have been able to see it. You
can look it up, but I am not sure exactly what the candle
power was, but it should be about a two-mile light.
The life raft light should be a two-mile light by
a seaman's eye on a good night.

MR. MURPHY: I'm sorry, I didn't
hear you.

THE WITNESS: The life raft canopy
light should be about a two-mile light also.

By Cdr. Loosmore:
Q. Do your duties also include approval of life jackets
or I guess they are called now PFD's?
A. Right.

Q. There has been testimony that there were three different
types of PFD's on board the Fitzgerald one of which has
been described as a styrofoam horse collar type, the
standard kapok type jackets, and cork jackets.
The debris included only cork type jackets.
A. From the lifeboat, probably.

Q. That's what I was going to ask.

REAR ADMIRAL BARROW: That's the debris
which we have recovered to date.
MR. MURPHY: I'm sorry. Again I didn't hear the witness' answer.

CDR. LOOSMORE: I really haven't asked the question yet, but I will ask it now.

By Cdr. Loosmore:

Q. The debris which has been recovered to date included only cork type life jackets. Would that indicate anything to you?

A. No; cork floats.

MR. MURPHY: May I ask for the answer that he did give? He did give an answer; I just didn't hear it.

THE WITNESS: I said that I would assume they came from the lifeboats.

MR. MURPHY: Thank you.

CDR. LOOSMORE: That's all.

REAR ADMIRAL BARROW: Capt. Wilson?

EXAMINATION

By Capt. Wilson:

Q. Mr. Lemley, you mentioned that the launching of a boat from a davit, from the tests that were conducted, took approximately 10 minutes in good conditions — whether they were ideal or not, I am not sure, but good conditions. Have you done tests with the davit launch raft?

A. Yes.
Q. And what was the time frame that it took for a davit launch raft?

A. We just did an installation test on an oceangoing tug for certification, which had a davit launch life raft, and we found an exempt SOLAS exemption.

This was part of the test to do that.

We did it again, a standard drill with the inspector; when he decided, he told the master to sound a general alarm and abandon the vessel, or some large number of the crew.

It took approximately three minutes from the whistle to go in the water. It was relatively simple and no one had to stay on board.

Q. You mentioned that this was an oceangoing tug.

To date have any tests been conducted on either a Great Lakes vessel or something similar to the freeboard?

A. The Frantz.

Q. With the davit launcher?

A. Yes.

Q. What time did it take there?

A. It was somewhere in the order of five minutes, but I would have to refresh my memory to give you the time exactly.

Q. You mentioned that the inflatable life raft light was a two-mile light.
How was it operated; by what means was the light operated?

A. It has a water-activated battery. When the life raft inflates in the water, the light should come on when the water hits it.

Q. This battery then is essentially a long life battery?

A. It should run for 12 hours and give a two-mile light.

CAPT. WILSON: That's all I have.

REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:

Q. Mr. Lemley, I would like for you to touch on the Great Lakes border between the United States and Canada. Is this an international voyage within the meaning of S.O.LAS or just what is the situation?

A. No. I think that S.O.LAS exempts the Great Lakes. It does exempt the Great Lakes.

Q. What are the ground rules then for vessels plying the Great Lakes; what rules do apply, if you know?

A. They apply to 46, the parts of Title 46 apply, depending on the type of vessel.

Q. Is there any agreement between the United States and Canada binding on vessels operating in the Great Lakes?

A. With respect to life-saving appliances?

Q. Yes.
A. Not that I am aware of.

Q. Does Canada have separate or different, if you know, rules for life-saving equipment than the United States?

A. Canada has domestic commercial life-saving equipment just as any other maritime nation does.

Q. Do you know in what respect they are similar?

A. I would assume they are similar, but I am unaware of their requirements.

Q. Are you aware of any differences that you can tell us about between the United States Navy rules and vessels sailing in the Great Lakes?

A. No.

Q. So your testimony then here is limited strictly to the U. S. regulations pertaining to life-saving equipment; is that correct?

A. Yes, sir.

Q. All right. I will show you this certificate of inspection for the Edmund Fitzgerald. It is Exhibit 2, and I will ask you to run through the required life-saving equipment. I know you gave us some general guidelines as to required equipment, but it says "life-saving equipment."

This is on Exhibit 2 under Equipment and Inspection Data, and it is titled "Life-Saving Equipment provided for 49 persons."

It says "One lifeboat, port side for 50 persons."
One lifeboat on the starboard side for 50 persons."
Would that be in accordance with the ground rules
you previously testified to, 100 per cent on each side?
A. It would be 100 per cent on each side.
Q. That would be required, and the vessel was in
compliance with that rule as far as you could see?
A. Yes, that would be basically the same as a coastwise
vessel.
Q. No. I am talking now strictly about the rules that
applied to the Fitzgerald.
A. That is more than in compliance.
Q. Inflatable life rafts for 50 persons, notation two,
does that meet the requirements or the regulations for
the Great Lakes?
A. It meets the requirements; it is in excess of the
requirements.
Q. What would be the minimum that would be required by
the regulations, current regulations?
A. Lifeboats for 49 persons.
Q. I am sorry. Lifeboats for 49 persons?
A. Yes.
Q. Would it have to be actually divided on both sides
if you can say?
A. The regulations don't specifically require splitting
it into two.
Q. An equal amount on each side?
A. No.
Q. Just the total would suffice?
A. Yes.
Q. How about 24 life rings and ring life buoys?
A. I would have to look at the requirement.
Q. Would you say that sounds reasonable?
A. Yes.
Q. And 85 adult life jackets?
A. Very reasonable.

MR. MURPHY: By "reasonable," does the witness mean within the requirements of the regulations?

THE WITNESS: In compliance with the regulations.

By Capt. Zabinski:
Q. You made mention of research going on and one item you mentioned was the weather profile of the Great Lakes. Are you familiar with that study, or is there a final paper or document?
A. There is a report.
Q. I wonder if you could tell us whether you recall any of the weather profile data particularly for the month of November?
Could you give us any idea about that?
A. I can't recall the details. It is primarily a compilation of wind forces and temperatures and snow, wind and rain and sea conditions. It is many, many pieces of data, obviously dealing with the cold.

Q. Does this publication have a title?

A. Yes.

Q. How can it be identified?

A. I can provide you with the title and the document number in the defense documentation system.

Q. When was this study done, or when was the weather profile done?

A. October of '73.

Q. Do you know what the circumstances were that initiated this study?

A. Yes.

Q. Was it as a result of any casualty, the NTSB or a Marine Board investigative recommendation?

A. Yes.

Q. Which one?

A. All.

Q. All?

A. Yes. It was part of the general review of the life-saving systems for our domestic and international rules. We began in the Great Lakes, one, there had been a series of casualties. One was a very identifiable area,
and that could be dealt with. We began there, because it was a domestic problem; we could deal with it unilaterally without being concerned about treaty requirements because they were domestic regulations.

That study was the first study in this particular series of studies, and we basically did it to define the weather conditions or to see what the weather was that ships would be seeing.

We were going to further look into the life-saving activity.

That was the first research project under the whole assessment of life-saving equipment on the Great Lakes equipment.

We started with the weather to see just what it is we were dealing with.

Q. Would this have been a recommendation from the National Transportation Safety Board as a result of any casualty, or any review of any casualty?

A. One of the recommendations was to require more inflatable rafts, so it was generally in response to that recommendation.

It was generally in response to basically a Coast Guard function which is to assess and develop regulations.

Instead of dealing specifically with the recommendations, we looked at the whole question and said, "Let us
find out what the total problem is and come up with a
solution, not necessarily narrowly saying that's a
recommendation and addressing that narrowly."

We said, "Let's look at the whole picture."

Q. Was there also a study being done unilaterally or in
conjunction with other countries to determine the same
information about international voyages or of coastwise
voyages?

A. The Great Lakes study consisted of the weather
study, then a study on just the functional requirements
for just a life-saving requirement.

Other countries are doing something very similar,
a lot of research. Yes, we did a study also for inter-
national shipping along the same technical approach of
casualty analysis, computer simulation, and just a review
of that.

Q. Are we doing that study unilaterally or in cooperation
with other countries, or how is it?

A. It is a U. S. effort.

Q. Are we sharing that information with other countries,
and are they sharing it with us?

A. Yes.

Q. What form is being used to exchange it?

A. The Intergovernmental Maritime Consultative Organization
Subcommittee on Life-Saving Appliances, that group is
reviewing and redrafting completely Chapter 3, which is
a life-saving appliance chapter of the S.OLAS Treaty,
so, of course, all this research being done in this country
and Canada and the Norwegian countries is obviously being
funneled into that committee in the development into a
new chapter on life-saving appliances.

Q. Is there any exchange of the weather profile on the
Great Lakes with Canada?

A. We obviously provided the report to our Canadian
counterparts.

Q. The Canadian Government, are they having any type
of research along the same lines, life-saving equipment,
weather profiles and so forth?

A. They are looking at a slide system for high density
passenger ships to some way get people off quickly
without going through the launching system and trying to
take them in little boats.

They have installed a system, I am not sure what
state of acceptance it is in, but we witnessed the test
in Vancouver.

The Canadian counterparts came down, and they went
through our series of tests with us. They went through
the test on the life rafts with us, the slide system,
and the boat test.

They also in Canada have used a draft launch raft
on their passengers for many years, I am sure since 1958
or approximately since that time.

It is basically a United Kingdom development.

Q. When you say the Canadian Government participated
in our tests or experiments and we participated, was this
as a partner or under an observer status?

A. Just observer status, and we exchanged views.

CAPT. ZABINSKI: Mr. Chairman,

I would like Mr. Lemley when he returns to provide
the Board with a copy of this study, please, sir?

REAR ADMIRAL BARROW: Could you do that,

please?

THE WITNESS: The study on the
climate?

REAR ADMIRAL BARROW: This is the weather
profile.

THE WITNESS: Yes.

By Capt. Zabinski:

Q. You did indicate a further study, a Battelle, which I
understand covered communications launching and exposure

protection.

Is that all part of the Battelle?

A. It was a second phase of the Great Lakes study, and
it was an assessment of the life-saving problems on the

Great Lakes, and that was the area and their conclusion.
Q. But this was all part of the Battelle study?
A. The second study, but both reports are by Battelle.
Q. Both the weather and the --
A. And the functional requirement study.
Q. That study is still going on? What is the status of completion?
A. That is complete. We are continuing with a similar study contract on vessel casualty analysis to use a tool that was developed in that study and putting different data in it, and just basically refining it and seeing if we could improve or get a finer cut on what we have seen.
Q. With regard to statistics, I appreciate that you don't have the records with you, Mr. Lemley, but could you give us some idea of statistics pertaining to effectiveness of life-saving equipment on the Great Lakes?
What is the experience?
A. Again, there hasn't been that many major casualties. The lifeboats, and those that we look at, have never been successfully used.
Q. Do we know why; is there an indication of why?
A. Again most of the casualties that did happen were quick sinking.
Q. Was weather a factor in those?
casualties?

A. I would have to look at what the weather was on the vessels.

Q. You indicated it would take under almost ideal circumstances or anyway, the best of circumstances, about 10 minutes or more to launch a lifeboat; correct?

A. Yes.

Q. In talking about the Fitzgerald, are you familiar with what type of davits the Fitzgerald had?

A. The difference, I think, may have made it faster, but I would guess the time -- the difference primarily would be that it had wire falls, and that should make it a quicker operation and a more simple operation as opposed to a manual operation; but I wouldn't guess that the time would be significantly different.

They used the whole system starting with the alarm.

A lot of times the problem is not necessarily the equipment, but general familiarization.

Q. My question is, what type of davits did the Fitzgerald have, if you know?

A. Mechanical. They had wire, a hand-cranking device.

Q. These are quadrantal or radial type or what type, if you know?

A. I don't know.

Q. Do you know if she was fitted with wire or Manila falls?
A. Wire falls.
Q. Do you know if any vessels on the Great Lakes are permitted to operate with Manila falls?
A. Yes, sir; they are.
Q. Existing vessels?
A. Yes.
Q. How about new vessels?
A. No, sir.
Q. As far as lowering the falls, what are the new regulations in that regard? Must there be a winch?
A. The wire falls, there would be a winch and a mechanical lowering.
Q. Both the falls would go down simultaneously?
A. Yes, it would be a much smoother operation.
Q. We have had some indication informally that people feel if the Fitzgerald were fitted with gravity davits, gravity type davits, that the launching of lifeboats would be expedited.
Do you have any experience in this or tests that you have conducted along this line versus the crank-out quadrantal type?
A. It would certainly make it simpler and easier, because it is automatic. You release it and the boat goes down and then you lower it.
Q. Have you timed the evolution to see how it would compare
with the 10 minutes that you indicated for the quadrantal type davits?

A. No, sir.

Q. Could you give us an estimate of the time from sounding the alarm to the time that you have said, 10 minutes, for the radial -- I'm sorry, the quadrantal type davits, with wire falls?

Would you give us an estimate?

A. My estimate would be still in the neighborhood of 10 minutes to do the whole exercise and have the whole boat loaded at the water level.

Q. The embarkation of people in a boat, whether it was launched by gravity davits or quadrantal davits, would be the same?

A. Yes, sir.

Q. People would either go down in a boat or climb down an embarkation ladder; is that correct?

A. Yes.

Q. Would it make it any easier or would there be any significant difference in launching a boat in extremely rough weather whether it were a gravity type davit or quadrantal davit, in your opinion?

A. Not significantly that portion of it, no.

The problem would be, in that type of weather, an open boat would be a problem no matter how you launch it.
Q. I'm sorry, I didn't get that.
A. The problem would be, in heavy weather, an open boat
will be a problem.
Q. What would be the problem: survival in the open boat
or getting into it?
A. Swabbing and getting in it, if you crawl down to it,
the water level.
It would be quite an exercise.
Q. With regard to Merchant Marine casualties in the past,
we have had the Bradley sinking.
Are you aware of that casualty?
A. Yes.
Q. In the Bradley sinking, there were two people recovered,
two survivors.
Do you know how they were rescued or what life-saving
devices they used?
A. I am not familiar exactly, no, sir.
Q. Whether they were rafts or boats or jackets?
A. They were not boats.
Q. How about the Morrell sinking? There was more person
saved during the Morrell.
A. On a rigid raft.
Q. Inflatable raft?
A. On a rigid raft, I think the old Type A raft.
Q. On a study, you indicated communications is a problem.
Presently do ships have a general alarm? Do they sound a general alarm? This is what alerts people. This is what you normally use to alert people to go to their abandon ship station on a Merchant Marine vessel.

Is there any indication that alternate means or additional means should be used or could be used?

A. Oh, I think the study didn't necessarily find a weakness with that part of the system; I think it was again looking at the total safety question, not necessarily just the life-saving appliance piece of it.

The Battelle people that load the ship, many of the ships, and spent a considerable amount of time, got quite involved in the Great Lakes operation with its conclusion that the communications was not just necessarily the internal ship communications during an emergency, but communications with the shore and for weather data prior to a problem even developing, so they had a good knowledge of what was about to happen or what the conditions were.

I think one part of the experience, they felt that the weather data wasn't being transmitted as easy and as good as it should be. This was maybe one thing that drew them to the conclusion of communication, but it wasn't just the internal communication in an emergency on a ship. It was generally before, during and after.

REAR ADMIRAL BARROW: Off the record a
moment.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

CAPT. ZABINSKI: Do you know when the Battelle study was conducted, in what year?

THE WITNESS: '74, I think, it was completed.

CAPT. ZABINSKI: Mr. Chairman, I would also request that a copy of the Battelle study pertaining to this phase be also provided to the Board.

REAR ADMIRAL BARROW: Mr. Lemley, would you furnish that for the record, please?

THE WITNESS: Yes, sir.

By Capt. Zabinski:

Q. Do you know if any steps were taken to implement the findings of this Battelle study pertaining to better weather information or better weather communications?

A. I am not completely aware of what is done. The communications issue is still being looked at with respect to usage of Channel 16 for better communications, and the whole question, I am not really that aware of what has been done on that.

Q. Are the results of the Battelle study recommendations or guidance or guidelines, or just how would you categorize
A. They make conclusions and recommendations.

Q. They make conclusions and recommendations.

This was for the Coast Guard? Was the study for the Coast Guard?

A. Yes.

Q. How about survival communications, what did that touch on?

A. The basic conclusion or recommendation was that it would be improved, such at the time to notify rescue units, whether they be government or other vessels, and was quicker and better.

We have done some work with the Coast Guard in general doing work with respect to EPIRBS, emergency position indicating radio beacons.

Q. Are EPIRBS required on Great Lakes vessels?

A. No, sir.

Q. Are they required on any United States vessel?

A. On the other inspected vessels, yes, operating 20 miles from shore, other commercial vessels.

Q. And this is what, an electronic beacon? How is it activated?

A. It floats free if the vessel sinks and sends a signal on 125 frequency, 121.5, and 243 kilahertz.

Q. You mean megahertz?
A. Megahertz.

Q. Is there any indication by the study that the EPIRBs should be included on this equipment on Great Lakes vessels or was this touched on?

A. The EPIRB question was complicated on the Great Lakes because of its proximity to shore. The whole frequency question is very complicated in the United States and actually all countries, and also the defense uses that frequency for aircraft and there was concern of it being overcrowded.

With respect to use of radio equipment for survival craft, that issue is being looked at for international vessels and domestic vessels, what would be the best way to provide better radio communications in survival craft, and should be settled or solved together because it would be the same problem, but the frequency question is very complicated and the use of the frequency was allowed on a very limited basis, basically for offshore vessels that would be 20 miles away from shore.

Q. What group or groups are working on that phase of the communications problem?

A. There is an R and D effort for the Merchant Marine, Office of Merchant Marine Safety and Boating Safety, and Office of Operations.

I would not have the details or how involved it is.
They are really trying to decide what the best type of SAR communications system to use in this country, and it is a continuing study.

Q. Did the Battelle study indicate or make any recommendations in regard to launching of lifeboats or inflatable life rafts?

A. Just a general recommendation that the launching piece of the system was the weakest point in the system and it's both Great Lakes and other ships, and that the basic recommendation is that methods be developed to improve it, and that is just generally their conclusion. That's a weak area.

Part of the way they concluded this was a computer program where they said if they could put in the program a 50 per cent improvement in the launching capability, and on the other end they would see whether that would affect the number of lives lost in a simulated casualty and whether it would have a major effect.

Making the lifeboat three times better had no effect on the outcome because the weakness was launching, so it would be that type of just general conclusion that that is the weak point, when we do an analysis.

Q. What makes launching a weak point in your opinion, Mr. Lemley?

A. You are moving from one fixed point to another.
In other words, that is the part that is transited in the whole operation.

You are on a ship and then, through some means of wires, going to another ship, a small craft, you are in between; and so any time that you walk, for example, on a high wire, it's reasonably safe on both ends, but getting in between is difficult.

It is the same thing if you have a maintenance problem or training problem. It requires several people to do the same thing at different times, and the weather is moving and you are going from a fixed place to a second fixed place in a transmit mode, and it is difficult.

Q. From the ship to the lifeboat or the life raft?
A. That is the most critical piece of the operation.

Q. Exposure Protection. The Coast Guard recently, in the past few years, has required boat crews to wear exposure suits during certain conditions.

Is there such a requirement for merchant vessels or have any studies been done along this line, or what is the experience?

A. There is no current requirement but there have been studies, and there are continuing studies as part of the Great Lakes program, a study was done on the analysis of exposure suits, a method of evaluating exposure suits, and the process was that they purchased several of them.
Cranked into the actual problem of exposure suits was the maintenance and the whole problem of activity coming from aboard the ship.

At that time those that were commercially available didn't meet the requirements that you would even need to have a minimum requirement and make it a meaningful requirement.

The tool is there to evaluate suits. As part of the study that has just begun, the hypothermia, we have funded the University of Victoria, Dr. Hayward, to look into the hypothermia and what areas of the body are most sensitive to cold.

He had already been doing work on it. He is one of the experts in the world.

We have with the Navy a contract to develop a suit, a potential suit, to see whether it would be useful. That contract should near completion the first of this year, where a suit then would be evaluated.

It is along the lines of the Canadian suit.

There are manufacturers in this country that are making suits that surely would be useful to have. They may or may not be good enough that you could put a Federal requirement on it to say that it is justified requiring it, but it would be good advice to say that if you are going to be involved in very, very cold weather it would be good to have
a course on it.

Q. Of course, in your duties as Chief of the Survival Systems Branch, you obviously attend many international meetings; is that correct?
A. Yes.

Q. Pertaining to life-saving equipment of all sorts?
A. Yes, sir.

Q. Do you know if any country has regulations or requirements for their merchant vessels or merchant seamen to be provided with exposure suits or exposure equipment?
A. I am not aware of any that require it. There are several countries looking at the problem. UK has done some research through their navy, and France has done some research.

There is a manufacturer of an exposure suit of which I am vaguely aware of its ability, but I don't think any country has required it. The development is just beginning of a good wearable, reliable suit that would be practical in a working environment.

Q. Mr. Lemley, exposure suits are not new. Shipping during World War II and going up into the Arctic Circle in a Murmansk run, they were provided. They had exposure suits then.

Here we are 20 or 30 years later and we are still going through exposure suits.
Were'n't they adequate, or what was part of the problem, or what is the problem?

A. I guess if you would measure those suits against the values that were developed to say a suit would be practical or valuable, they would not measure up very well.

Q. Do you know how many lives were saved on a Murmansk run with those archaic life exposure suits?

A. No.

Q. Do you know if any such statistic is available?

A. I don't know that you could attribute it to the suit, but I am sure they know how many people were rescued.

Q. I am sure if a man survived in a suit in the Arctic Circle, it would be a pretty good suit?

A. Yes. The problem is maintenance. It could be good that day and if it ripped the next day it wouldn't be too good.

Q. We had a witness that said that the water was around 50 degrees, and there were snow flurries. He was asked how long you could survive in water conditions in Lake Superior of that kind and he said about two minutes.

A. That's correct.

Q. You would say that is a pretty good guess?

A. I mean, it depends.

Again it depends on his physical condition and attitude.

It wouldn't be more than 15 minutes.
Q. That hypothermia research that we are doing is along those lines, trying to solve that problem; is that correct?
A. Yes.
Q. You indicated that the carbide water lights come under your bailiwick and electric water lights don't. Whose responsibility is the electric water light?
A. In the Marine Technical Division in the Engineering Branch, that is where the electrical engineers are, and they traditionally have looked at that piece of life-saving equipment.
Q. Have you evaluated it insofar as, or has your branch evaluated the electric water lights insofar as a piece of survival equipment is concerned?
A. No.
Q. As you would a carbide water light or anything else?
A. We obviously are very aware of it, and there have been problems with it.
Q. What problems?
A. It gets water in it, and water and electricity are not friendly.
Q. Is this because of the seal?
A. Just a design problem, a manufacturing problem; and again, to keep the unit cheap enough, it got to be a problem.

I am not sure which ones these were, but in the last
two years basically all the approvals were withdrawn, and
new approvals were issued for new design. So hopefully
the leakage problem has been resolved.

It is an atmospheric problem to some degree in that
outside at night it gets cooler and the water vapor goes
in, and even a tight seal is hard to keep. It is an
atmospheric problem to some degree.

Q. I was interested in your three-minute figure on the
davit launch life raft tests.

We are comparing, of course, three minutes, or from
your testimony I am comparing an abandon-ship time of
three minutes for inflatable life rafts of davit launch
versus 10 minutes or plus for lifeboats.

Just from that it would seem like we have again seven
minutes from the time we blew the whistle until the time
that the raft is actually launched and people are in it.

Is that actually, or is that really what is your
testimony?

A. For that number of people, yes. That was a 25-man
life raft, so you have got multiples in it that don't
necessarily again go into the total time.

Q. Does that include from the time the general alarm was
sounded?

A. Yes, sir.

Q. From the time the raft was inflated and people got
in and it was launched, three minutes?

A. Yes, and I think she had a crew of 25. It was done in New Orleans. That was complete, start to finish.

Again that is for 25 people.

If you had 50, then you would have to extend it by the length of time that it takes to pull out a second raft and get it going; and that would extend the time.

Q. Where do we gain the time?

A. Well, it is simpler. It is a single fall, a whip davit, and a simpler exercise.

Q. Well, Mr. Lemley, I am not questioning you but I want the record to be clear as to -- and I don't want to create any false optimism and I don't want to have any misunderstanding in your testimony as far as the launching time is concerned -- between gravity davits or quadrantal davits, and davit launched inflatable life rafts.

I would like for you to consider that question in the light that I pose it. Many people will be reading and hearing this record, and I just want there to be no misunderstanding.

A. What was the question?

Q. I am asking you to reconsider or to be sure that these three minutes from the time the abandon-ship alarm was sounded to the time that this inflatable life raft is launched with 25 people and away from the vessel versus 10 minutes --

A. It was three minutes, but again it was only 25 people.
I think the way to make it clear would be to say that if we had 50 people it would not be three minutes. There would be additional time, whatever it takes to get the additional raft, which puts you into six or seven minutes again.

CAPT. ZABINSKI: That is all I have.

EXAMINATION

By Rear Admiral Barrow:

Q. Mr. Lemley, where was the davit to launch the inflatable? Was it on center line or on the side of the ship?

A. It was on the side and it replaced the after davit head and an existing davit. I am sorry. This is on the Frantz? Which vessel?

Q. Either one of them.

A. Both of them?

The Frantz, it was just where the lifeboat had been. On the Stewart, it was just after the house on the port-starboard side, one each side.

Q. These were generally flat, calm conditions generally, essentially?

A. Yes.

Q. The crew was not just waiting inside the door to the house just ready to charge out?

A. No. They knew only that day that obviously something was going on and was going to happen, because there were a
great many Coast Guard people on board, but they were at their tasks.

At some point we told the chief mate to blow the whistle.

Q There are requirements in the Federal regulations with regard to the capability of being able to launch a boat under list conditions, are there not?

A Yes.

Q Would list have an important impact on the capability as far as a davit launched inflatable is concerned?

A I don't think it would be a hindrance; in fact, if it was a great list, you could pick it up and walk out to the water.

Q You could do what?

I didn't understand you.

A If it were a great list, you could pick the raft out and walk it out, wherever you found the water. I don't think it would be negative.

Q I don't understand.

A Well, if you went from the high side, you could go either way. I don't think that the list would have a negative impact.

Q But I think we are talking about a piece of equipment here where people get in and then are able to lower themselves into the water.

I don't quite understand that.
A. If it were a 15-degree list on the high side, they could go down, which is what a boat would do.

If it were much, much greater, I was just suggesting they would not get in. They would just take it to the water or just let it go on the side and wait and see what happens.

I don't think a list would be a negative effect.

Q. How about launching on the center line in the aft position or something of this sort? Would that be a possibility?

A. That is a good possibility. I don't know necessarily if it is a good possibility for a raft, but it is not totally out of the question.

The slide that we tried was an after launching system. I think the covered lifeboat or a covered lifeboat could be designed to be stern launched and might be a very good solution.

If I were designing an L and G tanker, I would design it for a stern launch system.

The Norwegian free system, which is a part of the ship, and their other system, which is a free drop lifeboat which will drop 70 meters in free fall, is a stern launch system which is very intriguing, because it gets you completely away from either side of the ship.

Q. Are you aware of what the requirements are in Federal
regulations for boat drills in terms of frequency?
A  I would have to familiarize myself with it.
Q  Have you had much experience in riding ore boats on
the lakes?
A  Have you been on them at all?
A  I have been on three.
Q  On three?
A  Yes.
Q  In any of the studies that you have talked about up
until this point, do the people doing the study consider
the aspects of training of a crew with respect to the par-
ticular types of equipment that they were dealing with?
A  Yes. I think it could have come in in the sense of
launching it. Again, make it simpler because training is
difficult to achieve.

I am sure it was considered and thought of. I don't
know if we read the report that we see it talked about
obviously, but as we are looking at the SOLAS convention,
we are trying to upgrade two areas which are fairly silent,
which is maintenance and training, where they may find
themselves in a different treaty because of jurisdictional
problems because of ILO.

We are looking very much at training and maintenance.

Q  Do you think the training is an important aspect?
A  Absolutely.
Q. And why do you think that?

A. Well, if you don't know what to do, you are not going to be able to use it.

Q. Would it be a fair statement to say that an approach is to develop equipment which is simple in performance to minimize what the training would have to be?

A. That is surely preferable.

Q. We have had a certain amount of testimony, in fact quite a bit, which indicates that lifeboat drills occur on the lakes during the fitout in the spring of the year, and then they are poor as compared with a ship at sea.

We have heard this a number of times during the testimony. Do you think it is possible from your experience as Chief of the Survival Systems Branch to adequately train a crew under flat water conditions or at a pier than it is to put a lifeboat over at sea under adverse conditions?

A. If the launching system that is going to have to be used in adverse conditions requires any complication, then obviously it would have to be out at sea. If the system were so simple that the weather condition was not a factor, then you could do it that way, at the pier.

Under the systems we have now, I think you need to drill and I think the boat should be put in the water if they are going to know how to do it.
Q. I want you to relate it to the lifeboats you observed on lake ships and tell me whether you think it is possible to train adequately a crew alongside a pier to put a boat in the water safely under adverse weather conditions on the lakes, using the kinds of equipment that you are familiar with?

A. The boats, open boats, I think that it is quite a tricky maneuver to actually put it in the water and get it away without training.

You would have to train to do that.

Q. Training under sea conditions?

A. Yes, sir.

Q. You indicated the alternative which was laid out for Great Lakes vessels, I believe you said in 1974?

A. August of 1974 I think.

Q. August of 1974. All right.

By what means was that alternative brought to the Ninth District; was it in letter form?

A. Yes, sir.

Q. It was?

A. In response to a proposal on some new ships.

Q. Can you tell me, if you know, how many vessels have taken advantage of this particular alternative?

A. I couldn't give you a number. I think that some new vessels being built are going to go that way.
Q. You don't know whether any have or not?
A. No.
Q. We have heard testimony on one other subject here that very few people are familiar with: Ore boat operations on the Great Lakes, and survival equipment, and has indicated a great degree of lacking for launching of boats in a seaway. They have indicated that they consider the inflatable to be a very good piece of equipment, but when they have testified, they have testified that what they would do would be to inflate the boat, the inflatable boat on the ship, and get in it and float off.
They have indicated a great deal of concern about trying to inflate it, throwing it over the side and then getting into it.
What is your judgment with regard to that particular point?
A. I would think if there were a place they could inflate it, that is probably a good approach. This is the throw-
over.
Now, a davit launch, you could inflate at deck level; inflate it, get in and go. If you were not completely sure that the ship was going down, but you were prudent, I think that would be a prudent thing to do.
Q. In the casualty analysis which has been part of the studies that you have carried out here, how much of a problem
has there been in throwing over an inflatable and then
safely evacuating the ship onto the inflatable?

Do you recall any specific cases on that?

A. There have been problems, not necessarily on the
Great Lakes, because I don't know that the -- I think
on the oceanic phase there was a problem.

They could not get the boats away for one reason or
another, but they put the raft over and got away because
the painter system was wrong.

Q. They got away?

A. The raft broke free. You know, going from one place
to another in a boat on a chain ladder is not going to be
easy.

Q. There were modifications on the painters of those
vessels?

A. Yes. All problems have been corrected.

REAR ADMIRAL BARROW: Mr. Murphy is the
counsel for Oglebay-Norton, operator of the
Edmund Fitzgerald, and I will ask him now if he
has any questions.

MR. MURPHY: Yes, I have some
questions.

REAR ADMIRAL BARROW: First let's take a
recess.

(Recess had.)
REAR ADMIRAL BARROW: Let the record show
we reconvened at 11:15 a.m. and counsel for parties
in interest, the same as we started today.

Mr. Murphy.

EXAMINATION

By Mr. Murphy:

Q. Mr. Lemley, for the benefit of those of us who are
not familiar with some of the terms you mentioned, may
I assume that S.OLAS, the S.OLAS Convention is Safety
of Life at Sea Convention?

A. Yes.

Q. What year would that be?

A. The 1960 convention. There is a '74 convention,
but it has not come into force yet.

Q. All right. Are there other parties to that convention
in addition to the United States and Canada?

A. Yes, nearly all major maritime nations.

Q. I was not sure whether it was a convention between
the United States and Canada or all other nations.

Then you use the term "SAR." Would you tell us
what that stands for?

A. Search and Rescue.

Q. Does that refer to Search and Rescue as operated by
the Coast Guard?

A. No. It could include all private other commercial
Q. I see. You mentioned that you had been aboard three ore carriers. Would you identify them, please?
A. The Joseph Frantz, the Forez, the Court, either the Court or the Blough.
Q. The Joseph Frantz is an Oglebay-Norton vessel. Do you know that to be a fact?
A. I don't know.
Q. When you were aboard the Frantz, that was in connection with the testing of this life raft; is that correct?
A. Yes, sir.
Q. And assume for the moment that the Joseph Frantz is an Oglebay-Norton vessel and those tests were made in cooperation, by the company cooperating with the Coast Guard; is that correct?
A. Yes, sir.
Q. And the company was interested as the Coast Guard was in determining whether or not this was a safe means of life-saving equipment, the use of life-saving equipment?
A. The company cooperated, sure, very cooperative.
Q. You mentioned the Stewart. Was that the tug, the oceangoing tug that you referred to?
A. It is a new tug, yes, sailing the north sea.
Q. And that tug is approximately what dimensions, if you know, sir?
A. I am not sure; I think it's 175 feet.

Q. And you mentioned a full crew, and perhaps I misunderstood you but I thought you used the number 10. Was that correct or did she have a greater number of crew?

A. The crew may be 15; I am not sure.

Q. 10 to 15 people?

A. Yes.

Q. And it was that number of people that were involved in this test, which was successfully completed in three minutes, is that right?

A. Yes.

Q. And it was one life raft and it was launched from what position on the tug with relation to the level of the water?

A. I wasn't there. I am just trying to visualize.

I suppose it was maybe 20 feet freeboard, 15 foot freeboard.

Q. Would it be a safe assumption, based on your knowledge of this type of vessel, that the distance involved would be less in launching one of these pieces of equipment, a distance above the water would be less than from a Great Lakes vessel, as you are familiar with lake vessels?

A. Time to lower is very quick, so if it is within 50 feet, it probably doesn't make a lot of time difference.

Q. The Admiral was asking you what different factors there might be between the two.
 Couldn't that lesser number of persons and the lesser
distance, wouldn't those also be factors in the determination
of the lesser amount of time, in your opinion?
A. It would be a small difference. As I tried to say
to the Admiral, a lot of time is lost in the doing of
several things prior to actually boarding and launching.
The time used is in doing two things, in two places,
and using two people to do it as opposed to one person
doing one thing. So the time isn't really -- once it is
moving, it isn't a matter whether it goes 50 feet or 10
feet. That doesn't affect it too much.
Q. But the difference in the number of people, the fact
that you would have more than one raft, as I think you
indicated earlier, on a 50 man crew or a larger vessel,
at least, those all would be factors adding to the
difference in the three minutes between an oceangoing tug
of approximately 175 feet and let's say a 700 foot lake
vessel?
A. They would be factors; I don't know if they would be
significant factors.
Q. All right. You mentioned, in your opinion, that training
was an important aspect of the use of lifeboats, and the
evidence here as related to us has been that the Coast
Guard always conducts the lifeboat drills in port, in spring,
during fitout when the vessels are all at a calm harbor;
and they lower the boat and the men get in and do those
drills in the harbor.

Now, you also said that, in your opinion, I believe,
that there would be some significance at least in conducting
such experiments out in the open lake while a vessel was
under way.

Was that a correct interpretation?
A. I didn't make the first statement. I think the Board
chairman made the first statement.
Q. Yes, but I am just comparing the two. Is there any
reason that you know of why there hasn't been any require-
ment that such a practice be undertaken?

In other words, if you consider that it would be impor-
tant, an important aspect in the training, do you know
why consideration hasn't been given to requiring vessels
to do this type of thing?
A. If I remember how I answered, I said I am not aware
of what the drill requirements are on the Great Lakes.
The regulations are here. We can read them. But under way
drills are required on oceangoing voyages.
Q. There are under way drills required.
A. That was, I think, what the Admiral was referring to.
Q. Yes, but I think both the Admiral and I, if I understood
the Admiral's question, but my question at least goes one
step further: Those drills had never required the
actual lowering of the vessel into the water during the
course of the drill and I am asking you if you don't
consider that this would be significant in the training
aspect and an improvement?
A. I answered that I thought if boats were to be used,
they should be lowered and exercised. I would think
that the regulations may require that.
Q. I see. Well, all the testimony here so far from the
various people has been that they have never known it to
be done and I am just wondering if that shouldn't be a
requirement.

You mentioned in the use of the EPIRBS system that
one of the factors in not adopting it was -- I am speaking
of not adopting it on the Great Lakes, it had to do with
the 20-mile distance and I didn't quite understand what
the significance of that was there.

I did understand your comments about the crowding
of the communications and frequencies and so forth, but
what was the significance of the distance? I didn't
understand that.
A. That's VHF range, but the frequency allocation is
very complicated, an inter-agency arrangement, and
part of the method by which the frequency allocation was
made was that the requirements for EPIRBS on commercial
ships would not be for vessels that would operate within
20 miles of shore because they had other means.

So that was how part of the arrangement by which
the frequency was allocated.
Q    I see.
A    One other part was that they had other communications
on the Great Lakes.
Q    Now, getting to that communication study and that
communication aspect, you did indicate that the total study
included communications with shore systems and shore
installations. Of course, part of that was in order to
provide a means by which vessels in distress could
communicate with shore radio stations.
    I assume that was included in the study, was it not?
A    Yes.
Q    Was there any consideration given to the requirement
of maintenance of certain amounts of equipment on stations
to make sure that they were capable of receiving these
distress calls?
A    The study's conclusion was there needed to be an
improvement in the communications system from before,
during and after.
    I am sure that such a change would be within the
framework of that recommendation, but it didn't specifically
go into what the solutions were. They would just
identify the problems and said what direction should be
gone into to solve a problem.

Q. In your opinion, would at least one solution be
to require the maintenance at all times of a minimum
amount or minimum number of systems that would be adequate
to receive such distress calls, rather than to just --
if one piece of equipment goes out or a number of pieces
of equipment go out and then rely on whatever happens
to be left?

My point being, shouldn't there be some basic minimum
number of systems in the event of a malfunction of one
or more of the other systems?

A. I am not sure what you are saying.

Q. Well, you are talking about dual communications,
maintaining better communications; shouldn't there be a
requirement for shore installations, for instance, to
maintain a certain minimum number of operative systems
at all times in order to better facilitate their reception
of distress calls?

A. The system of communications between the ships on
either the SAR capabilities or other ships or home operations
needs to be improved. I wouldn't be competent to say
what the solution was and what the electronics is, or
which is the best way to do it.

Q. But there are some recommendations in the report
to which you referred, which will be furnished?
A. If the question is, is that one solution, yes, that would be one solution. I don't know if it would be the best solution or not.

Q. Thank you. Do you know with respect to the maintenance of automatic weather reporting systems whether there are any alternatives or emergency or standby provisions in the event that an automatic station should go out due to weather causes or other causes?

Is there any automatic or emergency system?

A. I am not aware of it; that is not within my knowledge.

Q. I see. You have had mentioned to you that there had been two other sinkings on the Great Lakes involving both the Bradley and the Morrell.

I think you indicated that you weren't familiar with those?

A. I have read the cases; I just wasn't familiar with their details.

Q. Are you familiar with the fact that both of those vessels were in ballast without cargo?

A. No.

Q. You don't know that?

A. No.

MR. MURPHY: May I have a moment, please?

REAR ADmiral BARROW: Off the record.
(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

MR. MURPHY: I have no further questions.

REAR ADMIRAL BARROW: Mr. Lemley, counsel has phrased a question here in which I believe he stated that the Coast Guard carried out the drills in the spring of the year, and this, I would like to clarify the record that I did not say this.

The Coast Guard does not, of course, carry out drills; the Coast Guard witnesses drills, and my question to him was not phrased in that fashion.

MR. MURPHY: I understand that. I am sorry, Mr. Chairman. It was not my intention to misstate what your statement was.

I think the fact is, though, is it not, that during the course of the Coast Guard spring inspection that one of the requirements is that the Coast Guard witness and observe a lifeboat launching and operation?

Am I correct in this?

REAR ADMIRAL BARROW: That is one of the practices.

I would like to have you, Mr. Lemley, because the question has come up on the drills and the
requirements for the drills, and to your knowledge, in Title 46 CFR, is there a requirement concerning drills, the frequency of drills and so forth?

THE WITNESS: Yes.

REAR ADMIRAL BARROW: Would you find it, please, and read it for the record, the requirements for lifeboat drills?

I think this is applicable to the Great Lakes.

Off the record momentarily.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

Mr. Lemley, if you have found the section relating to requirements for drills, would you read the appropriate sections there concerning lifeboat drills and give us the reference.


"Fire and Boat Drills." Should I read it?

REAR ADMIRAL BARROW: Yes.

THE WITNESS: "(a) The master shall be responsible for conducting a fire and boat drill at least once in every week. The scheduling of such drills shall be at the discretion of the master except that at least one fire and boat drill shall be held within 24 hours of leaving a port if more than 25 per cent of the crew have been replaced
at that port.

"(b) The fire and boat drill shall be conducted as if an actual emergency existed. All hands should report to their respective stations and be prepared to perform the duties specified in the station bill.

"(1) Fire pumps shall be started and a sufficient number of outlets used to ascertain that the system is in proper working order.

"(2) All rescue and safety equipment shall be brought from the emergency equipment lockers and the persons designated shall demonstrate their ability to use the equipment.

"(3) All watertight doors which are in use while the vessel is under way shall be operated.

"(4) Weather permitting, lifeboat covers and strong backs shall be removed, plugs or caps put in place, boat ladders secured in position, painters led forward and tended, and other life-saving equipment prepared for use. The motor and hand propelling gear of each lifeboat, where fitted, shall be operated for at least five minutes.

"(5) The passengers, if carried, shall be encouraged to fully participate in these drills and shall be instructed in the use of the life
preservers.

"(6) In port, every lifeboat shall be swung out, if practicable, and the unobstructed lifeboats shall be lowered to the water and the crew exercised in the use of the oars and other means of propulsion if provided for the lifeboat. Although all life boats may not be used in a particular drill, care shall be taken that all lifeboats are given occasional use to ascertain that all lowering equipment is in proper order and the crew properly trained. The master shall be responsible that each lifeboat is lowered to the water at least once in each three months.

"(7) When the vessel is under way, and weather permitting, all lifeboats shall be swung out to ascertain that the gear is in proper order.

"(8) The person in charge of each lifeboat and life raft shall have a list of its crew and shall see that the men under his command are acquainted with their duties.

"(9) Lifeboat equipment shall be examined at least once a month to insure that it is complete.

"(c) An entry shall be made in the vessel's official logbook relative to each fire and boat drill setting forth the date and hour, length of time
of the drill, numbers on the lifeboats swung out
and numbers on those lowered, the length of time
that motor and hand-propelled lifeboats are
provided, the number of lengths of hose used,
together with a statement as to the condition of
all fire and life-saving equipment,watertight
door mechanisms, valves, et cetera. An entry shall
also be made to report the monthly examination of
the lifeboat equipment. If in any week the re-
quired fire and boat drills are not held or only
partial drills are held, an entry shall be made
stating the circumstances and extent of the drills
held.

"(d) A copy of these requirements, Form CG-809,
shall be framed under glass and posted in a conspic-
uous place about the vessel. This form may be
obtained from the officer in charge, Marine Inspection."

REAR ADMIRAL BARROW: Thank you, Mr. Lemley.

Capt. Zabinski?

CAPT. ZABINSKI: Does Cdr. Loosmore

have any more questions?

REAR ADMIRAL BARROW: Cdr. Loosmore, do

you have a question?

CDR. LOOSMORE: Yes, sir; I have

a couple.
EXAMINATION

By Cdr. Loosmore:

Q. Mr. Lemley, you discussed a report which you described as a weather profile of the Great Lakes in with some of this research.

A. Yes.

Q. And I believe you said that that was finished in October of 1973?

A. Yes, sir.

Q. Is that report generally available to the public?

A. Yes.

Q. In discussing the results of some of the research you used a phrase "time to launch."

Do you or are you aware of whether there are any studies which attempted to increase the available time to launch?

A. No, not in the life-saving system study. We would obviously be study the vehicle as available to us: how do we solve that part of the problem.

We were given the ship and life-saving equipment designed for that ship.

Q. Did the Battelle study decrease -- I guess the reverse of that, rather than shortening the time necessary to launch, did it take steps to increase the time available for launch? Are you aware of any of that?

A. I don't think it made that type of statement.
I think it said that the time is short so the system
must be capable of accounting for that shortness of time.
Q. If I understood what you said correctly about electric
water lights, you said that there had been some troubles
with them and some changes and approvals; is that right?
A. Yes.
Q. Is there a listing of approvals, which lights are
approved and which are not and so forth?
A. Yes; it is available at the Marine Inspection Office
or I can supply it.
Q. So if we provided you with an identification of an
electric water light, you could tell us whether or not
it was an approved light?
A. Yes.
Q. Does that same sort of thing apply for carbide water
lights?
A. Yes.
Q. They come with approval numbers and so forth?
A. Yes.
Q. Are they presently approved?
A. The carbide light is no longer approved for manufacture.
If it is on board, it could continue.
The specifications of approval of carbide lights
was withdrawn after -- I have to check the date, but
somewhere in the late '60s, so it is no longer manufactured,
but any of them that were in service could remain in service as long as they appeared to be in good order.

   CDR. LOOSMORE: Mr. Murphy, I believe one of the things we had asked the company to provide was some information on what type of electric water lights were installed on the Fitzgerald.

   MR. MURPHY: May we go off the record a moment, Mr. Chairman?

   REAR ADmirAL BARROW: Off the record.

   (Discussion off the record.)

   REAR ADmirAL BARROW: Back on the record. I think the thing to do is strike the last question that you put to Mr. Murphy.

   MR. MURPHY: And may we also be sure that the record eliminates the question, not just shows that it was stricken.

   REAR ADmirAL BARROW: Yes.

   CDR. LOOSMORE: Sir, I have a list of items that Mr. Lemley said he would provide. Would you like me to go through that now?

   REAR ADmirAL BARROW: Yes, please.

   CAPT. ZABINSKI: Why don't we finish the questioning first?

   REAR ADmirAL BARROW: Are you finished with your questioning?
CDR. LOOSMORE: Yes, sir.
REAR ADMIRAL BARROW: Let's see if the parties
in interest have any or if any members of the Board
have any questions and then see what we have in
conclusion.
Do you have any further questions?
CDR. LOOSMORE: No, sir.
REAR ADMIRAL BARROW: Capt. Wilson?
CAPT. WILSON: Yes, sir; I have a
couple.

EXAMINATION
By Capt. Wilson:
Q Mr. Lemley, I had a little confusion which I would like
to carry out or see if I understood this correctly.
On your survivability studies, on the studies that
you were discussing, as I understand it, then, the limit
of the study was to look at various survival systems?
A Yes, sir.
Q But not necessarily to tie that into the survivability
of the ship itself, only looking at the survival systems
independently?
A Yes, sir.
Q There was quite a bit of discussion concerning drills
and of course there was also some discussion concerning
davit launch life rafts.
Can you drill with a davit launch inflatable life raft?

Can you hold drills for the crew?

A. Yes.

Q. So it is the type of vehicle that you could use?

A. You can arrange a scheme by which you could drill.

Q. At the completion of the drill, is the vehicle available then for use again?

A. It depends upon the scheme you would use. Some people would provide an additional unit. It could be just a drill unit that was capable of being inflated and used or some other people would do their drills and do an actual inflation at the yearly servicing time, and would inflate it and have it serviced and put back in place.

To some degree for the raft, you could do nearly the same drill that we now do with the boat, which is do it all by inflating it because the scheme is to rig it out and get it all out in practice and know what to do.

So you could develop a scheme that would make it possible to drill.

Q. You mentioned a statement concerning the carbide water lights, that the approval was withdrawn in the late '60s. Was the approval withdrawn or was it just terminated and not reissued?

A. The specifications was withdrawn which then would cancel all approvals and the manufacture then ceased of the
carbide lights.

Q. Was there a specific occurrence or reason that brought this about?

A. The development of the electric light, which had a higher intensity, at the same time when that specification was published, the carbide light specification was withdrawn.

There were some problems over the years with maintenance of the carbide light. I don't think there were any casualties with the carbide light but there were problems of leakage and finding if they hadn't hung them right, the solder closure would wear, so there was a series of problems. I don't know how significant they were, but the specifications were withdrawn at the same time the brighter electric light was put forward.

Q. You also mentioned that although the approvals were terminated, the use of the carbide light was not terminated; that the lights, canisters could continue in use until they were no longer, or could continue in use as long as they were in good order; and how would this be determined, whether they were in good order?

A. By inspection.

Q. A visual inspection would disclose that the canister was satisfactory?

A. Yes.
CAPT. WILSON: That's all I have.
REAR ADMIRAL BARROW: Capt. Zabinski?
CAPT. ZABINSKI: Yes.

EXAMINATION

By Capt. Zabinski:

Q Mr. Lemley, were any other studies beside the Battelle or this weather data study that you indicated, made as far as life-saving equipment or devices are concerned?
A Yes.

Q What other studies are there?
A There was the study on the survival -- on the exposure suit, which is a published report.

Q Is that part of the Battelle study or is that a separate report?
A It was done by Battelle but a separate study, a separate contract.

Q Do you know when that study was completed?
A '73 or '74, right at the same time. There is a published report done by Battelle for all shipping, all U. S. shipping. These are all published reports.

CAPT. ZABINSKI: Could the Board be provided with a copy of that, Admiral?

REAR ADMIRAL BARROW: Please provide the Board with a copy.

Q What other studies are there?
There is a report, a published report of the actual raft slide and the boat test that I spoke of earlier on the Great Lakes. That is a published report that was available.

Q. And when was that?
A. It was about the same time. I am not sure of the exact date.

Q. Can we be provided with a copy of that, please?
A. Yes.

Q. Do you know of any other studies of survival equipment that have been conducted?
A. Early in the '60s -- not early in the '60s, but 1966 or '67, there was a study on life preservers that was done at A. D. Little, Inc. in Boston.

Q. Did that part of the study cover life-saving devices as used on the Great Lakes?
A. It was just the physical requirements of people that were affected by life preservers, basically what is the buoyancy required to float and turn and so forth.

Q. Could the Board be provided with a copy of that, too, please?
A. Yes.

Q. Have there been any other studies?
A. There are some other studies going forward.

I am not sure they have been completed.
I will give you a list of the titles and names of the studies.

I would have trouble recalling them right now.

REAR ADMIRAL BARROW: Would you provide those for the Board?

Q As best you can recall, try to recollect what studies there are in hand.

A There is a contract with the Navy to look at the exposure suit and to develop an exposure suit.

There is a contract with the Naval Academy to look at a unique launching type arrangement, an inclined plane, which I discussed, and a float free, the effects of float free, how a float free system might work.

We contracted with the Army to develop a scheme for measuring the thermal effectiveness of an inflatable life raft. That is a published report or is about to be published.

There are several other miscellaneous type programs going forward, but I would have to get them.

Q Mr. Lemley, I realize you may not have recall on a particular study; however, when you return to your office, any studies that are presently --

A I can put together a total report of the studies.

Q I would appreciate you doing that and communicating those studies to the Board, please.
In regard to the Battelle study, the question came up about communications coverage. What does that entail? Was it shore stations, vessel communications, and just what aspects were covered in that?

A. The sense of the study I think was that there was good daily operating communications; maybe some of the problems with respect to life saving would never occur, so they made that conclusion.

Were we to have good communications established such that there was a good exchange of information about what we might find, et cetera, good weather information, then that was sort of a pre-problem communication, just a normal communication to communicate with ships.

Then, assuming that a survival craft was launched, there was a general conclusion again with respect to life saving with respect to the shortest time that you could possibly leave people adrift; therefore, if you could send a signal and say that we have gone over the side, and then have another signal that will locate where you are, then this SAR aircraft -- or SAR craft, whether it be private shipping or Federal forces -- it is going to get there quicker.

So again the conclusion was that that area needs to be improved if you want to shorten that time of exposure or time of risk.
Q. Do you recall if the study took into account the
Great Lakes area specifically?
A. I assume it did; it was on the Great Lakes.
I don't think it went into the details of what is
there and what is not there and how you might solve the
problem.

It just made the conclusion that the shorter the time
that you put the people at risk in survival craft, the
better, and then you need to improve their ability to
communicate back to the rescue craft and the ability for
the basic ship to send a message to someone that would be
listening to the distress signal.

Q. The Battelle study was strictly for the Great Lakes.
Is that the comment you made?
A. That study was for the Great Lakes, yes.

Q. Do you know if any evaluation of the shore stations
surrounding the Great Lakes was taken into account in
that study?
A. In the process of doing the study, they talked to
Coast Guard headquarters here at the Ninth District
about how things were, just to get a sense of, say, the
time it took to respond and if we had a casualty here
and it got a message, what was the time that it would take
to get ships there.

So they did that in a generality but not in a final
analysis. I don't think it is something that lends itself to a detailed analysis.

Q. But the report does address itself to that facet?
A. Yes.

Q. I was interested in your comments on the water lights on life rings. It was primarily a navigational assistance for the vessel to come back to the scene or the spot where the life ring was thrown over?

Would it not be equally true that it would give a target for a person in the water, to locate the person in the water?

A. If it were thrown in the water where the person was, yes.

Again, it is on the navigating bridge, and someone says "Man overboard" and someone throws it overboard. What is the distance in that time? It is primarily a point to mark the course departure, so you come around and you know where you left your track.

Surely if there is a light that is there, it is encouraging and it will give you a light to go by.

The primary purpose and reason is really a navigation marker.

Q. Would that be equally true of a light on a life raft, an inflatable life raft?
A. No. The light on the life raft is primarily a
marshalling light. The raft is inflated and there are people about, and they see the light and can come to it. It is secondarily a search and rescue in that it is low power. It is a short-range light.

Q. Do the regulations require that the life ring and a water light attached to it be float free in the event of a sinking vessel?

A. I think it requires it to be easily cast loose. If it did not float free, I would not be necessarily surprised.

Q. But do the regulations require that they be float free?

A. I think it says that they should be capable of being readily cast loose. I would not be held to those exact words, but no, they do not require float free, to answer your question.

Q. Has any evaluation been made about launching inflatable life rafts for survival in 20 or 30-foot seas?

A. No.

Q. Has there been any evaluation made so far as the survival capabilities in any seaway of inflatable life rafts?

A. Yes, and there has been experience that, with the combination of tests and experience, shows that it takes a certain sea.
I would not want to specify what sea they cease to be as a viable piece of gear.

Q. Would you say that the chances of them being successfully used is the same in a violent sea state as a calm sea state, or what would be your opinion?

A. I would not think it would be the same.

Q. Would it be more in a violent seaway or less?

A. Less.

Q. Rough sea weather?

A. Yes.

Q. We have several witnesses that have appeared before the Board, seamen, licensed officers, masters who have sailed on the Great Lakes as a normal course of business.

Many have commented gratuitously about the fact that they have not ever seen an inflatable life raft launched or inflated.

Are there any requirements for any training to your knowledge of crews with respect to inflatable life rafts?

A. Just a general requirement which I read earlier; that people be trained to use the life-saving equipment that they are assigned to.

There is no specific requirement, although the licensing examinations speak to it; it does speak to life rafts.

Q. My question and concern really is that we have mariners who are going to use a piece of equipment in an emergency.
Yet they have never or really don't know what to expect to come out of this closed case or what is in it.

This is according to what they have indicated.

We have witnesses from one company and there may be others on the lakes, but from the witnesses who have testified before this Board they have given testimony that they have sailed for U. S. Steel and have indicated that the company has a procedure by which a training group or an individual goes from ship to ship with an experimental or training raft.

Do you have any comments on that? Would this be effective in training people?

A. I think it would be very, very important. I think it is not being done in a degree that it should be done. The rafts all require servicing yearly, which means that each company is going to have its raft looked at, opened, and disassembled.

It would be possible to develop a scheme whereby you could have a raft just ready to go to shore, and it would be open, inflated, and everyone would be given the opportunity to become very familiar with it.

They could take it to shore and it could be a simple matter on some rotating method with respect to the servicing facility.

This is something that is being discussed at headquarters
with respect to the qualifications of seamen.

There was a recent article in "Proceedings of
Merchant Marine Council," which says that people have not
been familiar enough with rafts and could go to a raft
servicing facility to see them operated.

They recommended that if you have not gone ashore,
you could go to a servicing facility because they are
inflated. Some are required to be inflated on five-year
periods.

In any case, they are all inflated by air and the
opportunity is available at the ports to see inflated rafts.

Q. But a seaman would have to leave the ship and go to
a facility?
A. Yes, but those rafts are coming from ships.

Q. There is no requirement that this raft be demonstrated
to be used by the manufacturers or anything of that sort?
A. No, other than the requirement for familiarization
with life-saving equipment which is in the regulation.

Q. How would a manufacturer familiarize himself?
A. It says that it is the master's responsibility to
have his people familiar with the equipment.

Q. The manufacturer doesn't provide a placard, or is
that also required by the regulations?
A. That is required by the regulations in respect to
the stowing.
Q. Does that describe the equipment in the life raft, as you recall?

A. No, it is primarily launching.

CAPT. ZABINSKI: That is all I have.

REAR ADMIRAL BARROW: Let's go off the record.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

Cdr. Loosmore?

EXAMINATION

By Cdr. Loosmore:

Q. In our discussion of carbide water lights, I believe you said that a carbide water light has a visibility of five miles; is that correct?

A. I said five to nine miles. You could look in a visibility table for that candle power.

Q. And then you said something about an electric water light having a visibility of two miles; is that correct?

A. Yes.

Q. Just a few moments ago I thought I understood you to say that the electric light being of higher intensity replaced the carbide light?

A. It was a higher intensity than the specification for the electric light. The candle power went up from an old electric light to a brighter new electric light.
There was an old specification for an electric water light that had a certain candle power. The new specification was a new higher candle power that made the two-mile light formula as opposed to a seaman's eye.

CDR. LOOMORE: I am prepared to summarize the information that he said, that Mr. Lemley said he would provide us.

REAR ADMIRAL BARROW: Do so.

By Cdr. Loosmore:

Q During the course of your testimony, there were several things that came up that you were asked to provide the Board. You can do that by letter to the Chairman of the Marine Board in care of the Ninth District.

This information included data on the requirements for primary life-saving appliances for vessels in the St. Lawrence Seaway;

A copy of the weather profile study for the Great Lakes, which I believe you said was dated October 1973;

A copy of the study which was conducted by Battelle, which you described as 'a functional requirement study, and I did not get the date on that?

A '74.

Q 1974?

A Yes.

Q Additional studies conducted by Battelle on survival
suits in 1974 on a raft and a slide disembarkation

system in 1974; a study by Arthur D. Little on life
preservers, which I believe was some time in the '60s?

A. '66.

Q. And a list of the other studies which were presently
under way in the area of life-saving equipment as they
relate to Great Lakes problems.

There was also mention of a letter of alternative
requirements for Great Lakes life-saving equipment which
I believe you said was dated August of 1974?

A. 5 August I think.

Q. Could you provide the Board with a copy of that letter?

A. Yes.

CDR. LOOSMORE: That is the list, sir.

REAR ADMIRAL BARROW: Fine.

Do you have anything else at this time?

CDR. LOOSMORE: No, sir.

REAR ADMIRAL BARROW: There has been a
question about the type of water light placed,
the electric water light furnished aboard the
Fitzgerald during the fitout season.

The water light was furnished by Oglebay-Norton,
and we do have the approval data on that, the identifi-
cation data, and I will ask Capt. Zabinski to read
that into the record.
CAPT. ZABINSKI: Oglebay-Norton

provided a light with the following identification:

Save-U-Lite, manufactured by that company in Baltimore, Maryland.

The approval number was 161.010/3/3, and
the manufacturer's part number was WL001-01-C/C.

REAR ADMIRAL BARROW: Does the Board have anything else? Mr. Murphy?

MR. MURPHY: Nothing.

REAR ADMIRAL BARROW: Interested parties?

(No response.)

REAR ADMIRAL BARROW: Thank you, Mr. Lemley.

Do you have anything further that would assist the Board in determining the cause of the sinking of the Fitzgerald?

Excuse me. We have one further question.

By Capt. Zabinski:

Q Mr. Lemley, we have a situation with the Fitzgerald where the master reported that he was in Lake Superior and having difficulty and was taking on some water.

The pumps were on and he was in communication with the vessel astern, the Anderson.

The vessel proceeded about three or three and a half hours, and suddenly it disappeared.

We have recovered to date two lifeboats, or one lifeboat
and half of another one, and we have located or recovered
two inflatable life rafts that were aboard.

We have recovered cork life jackets and some 13 life
rings, two with carbide water lights attached, two with
the plug-ins of electric water lights.

To date we have not recovered any of the personnel
aboard the Fitzgerald or the 49 persons aboard.

Given those facts, could you tell the Board what you
think or why didn't we save people with the life-saving
equipment?

A. My assumption would be that they didn't attempt to
use it. I think had they attempted to use it, they would
have been able to get in the rafts.

Also, had they had life preservers, we should have
discovered people in the water. So having not found
any survivors in the water or in boats, I can only assume
that they didn't come out of the ship.

CAPT. ZABINSKI: Thank you. That

is all I have.

REAR ADMIRAL BARROW: Is there anything

further that you would have to add to what you
testified to?

THE WITNESS: No, sir.

REAR ADMIRAL BARROW: Thank you very much.

You are excused, and I caution you not to discuss
your testimony with people other than counsel
before the end of this investigation.

Thank you very much. Let's take a recess at
this time until 1:15 p. m. Thank you.

(At 12:15 p. m., the luncheon recess was had
to reconvene the same day at 1:15 p. m.)
AFTERNOON SESSION

1:25 p.m.

REAR ADMIRAL BARROW: Let the record show we reconvened at 1:25 p.m.

Counselor for Oglebay-Norton Company is present.

Cdr. Loosmore?

CDR. LOOSMORE: The Board calls

Capt. Webster, please.

Would you raise your right hand, please.

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DELMORE R. WEBSTER

called as a witness, being first duly sworn, was examined

and testified as follows:

EXAMINATION

By Cdr. Loosmore:

Q. Would you please state your name, address and occupation?

A. Delmore R. Webster, 27223 LeMoyne Road, Middlebury, Ohio 44347, Temporary Master of the Steamer J. Burton Ayers.

REAR ADMIRAL BARROW: Captain, would you

spell your name again, please?

THE WITNESS: W-e-b-s-t-e-r.

REAR ADMIRAL BARROW: I'm sorry, the name of the ship is what I mean.

THE WITNESS: A-y-e-r-s.

REAR ADMIRAL BARROW: Captain, you have
been here during part of the testimony, but I will again go over the purpose of the investigation with you to determine the best we can the cause of the sinking of the SS Edmund Fitzgerald with the loss of 29 people.

You, of course, know that we have not been able to, nor has anyone else, to locate any survivors or any of the people who were aboard the ship. It makes this Board's job a little more difficult.

We have called numbers of people to attempt to get as much information as we can from them concerning the Edmund Fitzgerald and also practices on the lakes; but this is the purpose in calling you, to discuss with you anything that you might have that might assist us in our purpose.

I would ask you to answer as specifically as you can. I have had not too much success in limiting people's answers to precisely what is asked for, but I will ask you again to explain as closely as you can and as directly as you can, the question, without volunteering a lot of additional information.

I will ask you to speak as slowly as you can because we are trying to get a verbatim record.

Counselor, would you note your appearance on behalf of the witness?
MR. KEENEN: Yes, sir; Roman T. Keenen, attorney for Capt. Webster.

REAR ADMIRAL BARROW: Continue, Cdr. Loosmore.

By Cdr. Loosmore:

Q. Capt. Webster, do you hold a Coast Guard license or document?

A. Yes; master of any gross tons upon the Great Lakes and connected tributary waters; first-class pilot between Duluth, Gary, Buffalo and North Tonawanda; radar observer.

Q. How long have you held this license?

A. Three years, the master's license was issued February 1973.

Q. How long have you been a licensed officer in any capacity?

A. Since 1965, permanent.

Q. Is that when your first license was issued?

A. No, sir; my first license was issued in Cleveland, Ohio, I believe in 1964 or '63.

Q. And how long have you been sailing on the lakes in any capacity?

A. Since 1953.

Q. Has your sailing been continuous?

A. Yes, sir.

Q. As you know, Capt. Webster, this Marine Board of Investigation is concerned with the Edmund Fitzgerald.
Did you ever sail on the Fitzgerald?
A. Yes, sir.
Q. When was the last time you did?
A. 1975.
Q. For what period?
A. From January 16 until January 29.
Q. Who was the master during that period?
A. Ernest M. McSorley.
Q. Did you sail at all on the Fitzgerald in the '74 season?
A. No, sir.
Q. And at any other time previous to that?
A. Yes.
Q. What were those periods?
A. 1961 as temporary wheelsman; 1962, and all in an unlicensed capacity, from wheelsman to deckhand; and 1973 as a second mate.
Q. Did you have anything to do with the fitting out of the vessel?
A. In 1973, yes.
Q. You did?
A. Yes, and also 1962.
Q. How about in 1975?
A. No, sir. Excuse me, yes. I'm sorry.
I was running a winter gang in Toledo. We did inspect
all life-saving equipment prior to the crew coming aboard.

I was port captain in Toledo.

Q. During the 1974-75 layup?

A. The spring of '75.

Q. Who was master during the 1973 period when you were second mate?

A. Ernest M. McSorley.

Q. Did you feel that you knew Capt. McSorley well?

A. Yes.

Q. Did he ever express to you how he felt about the Fitzgerald, about the ship itself?

A. Yes.

Q. What did he express?

A. He said it was a very good vessel.

Q. How would you describe Capt. McSorley; was he the kind of a man who would talk over problems, or did he keep them to himself?

A. He would discuss problems if he thought they were of a serious nature that warranted discussion.

Q. Were there any circumstances that you recall that he did that with you as a mate?

A. No, sir.

Q. Would you describe him as a cautious sailor?

A. I would describe him as a prudent mariner.

Q. A prudent mariner?
Q. Capt. Webster, at any time when you were mate on the Fitzgerald in '73 or during your period that you were mate in '75, did the vessel ever tip ship?
A. Tip ship?
Q. Did you ever tip ship?
A. No, sir.
Q. Did you ever experience any damage at an unloading dock?
A. No, sir.
Q. No damage at all during unloading?
A. No, sir.
Q. Did you ever have anything to do with the loading or unloading?
A. Yes, sir.
Q. What did you have to do with the loading?
A. As first mate I was responsible for laying out the cargo and had complete supervision of the loading, and as the unloading took place, I was watchstander as second mate.

We ballasted the ship during the unloading procedure.

Q. What did you use for guidance in your role as first mate for laying out the load?
A. They have a loading manual about. I looked it over when I went aboard to relieve in January. They also had other records from previous loads and previous cargoes to
use as a guideline.

Q. Did you ever load at a chute dock?
A. Not on the Edmund Fitzgerald.
Q. I meant specifically with the Fitzgerald.
A. No, sir.
Q. Do you know whether there was any information on board about loading in a chute dock?
A. Yes, sir.
Q. What was the nature of that?
A. In the loading books provided by the company where they keep a record of each load and how much tonnage went in each hatch and each compartment.
Q. Did you keep a record of the loading?
A. Yes, sir.
Q. Where would these records be kept?
A. Aboard the ship.
Q. Aboard the ship. Do you know of any record which might have been sent ashore which could be used to reconstruct the loading of the Fitzgerald on its departure from Superior?
A. No, sir.
Q. Is there any such record that you are aware of?
A. No, not that I know of.
Q. Is any such record kept on the Burton Ayers now?
A. Yes, we keep records of our load and we had them aboard
the ship for the next men coming aboard.

Q  Do you send any such record ashore?

A  No, sir, just the total cargo.

Q  While you are loading, do you keep track of the drafts?

A  Yes, sir.

Q  During the loading process?

A  Yes, sir.

Q  Do you recall or do you have any record which would indicate what the deepest draft aft which the vessel ever attained during the loading process was?

A  Just from memory; I have no written records. It would be just from memory.

Q  What would that deepest draft be?

A  Not over 28 feet three inches aft.

Q  Was that greater than the final even keel draft?

A  Yes.

Q  Do you recall in your loading of the Fitzgerald whether the vessel was on an exactly even keel or was loaded with any sort of trim when you were finished loading?

A  We try to keep one to two inches by the stern with no hog. Specifically no hog and no sag, if possible.

Q  How much sag would be allowable, if it wasn't possible?

A  Well, Capt. McSorley stated that one inch would be acceptable, but under no circumstances, no hog.
Q. When you were loading, were you also fueling simultaneously?
A. On occasions, yes.
Q. Did you ever finish loading before you finished fueling?
A. Not that I can remember, no. You can't do this.
Q. Why not?
A. Well, because your fuel -- you would have to allow in your draft for your fuel going aboard.
Q. Well, then, would you stop the loading and wait for the fuel to come aboard?
A. Yes.
Q. If necessary?
A. If necessary, yes.
Q. Do you recall what the lifeboats on the Fitzgerald were like?
A. Yes, sir.
Q. Now, either from your experience as a mate on board the Fitzgerald or from your experience as a port captain in Toledo during this winter, do you recall where the life jackets were stowed on the Fitzgerald?
A. Yes, sir.
Q. Could you describe that to us as well as you can remember it, please?
A. They were in a canister or a metal fabricated box with a
latch top, an opening at the bottom that pulled up and
they were painted with an international orange, and
stenciled on the side was the content of the box, one on
each side of the vessel.
Q. What were the types of jackets which were stored in
these boxes?
A. They were the cork.
Q. Where were these boxes?
A. On the boat decks, opposite the lifeboats.
Q. Were there boxes stowed in the boat as well?
A. Yes, two in each boat.
Q. What kind were they?
A. Cork.
Q. How many jackets were stored in the boxes?
A. As near as I can recall there was either 13 or 14.
Q. In each box?
A. Each box.
Q. What other kinds of jackets were aboard?
A. Horse collar and kapok.
Q. Where were they stowed?
A. Most of the horse collars were in the pilot house
and in the engine room and most of the kapok were in the
crew's quarters.
Q. Was a jacket issued to an individual or just put into
the quarters?
A. After they were inspected, they were brought around
and put in the proper holders provided.
Q. Were they necessarily issued to an individual crew man?
A. No, sir. They were selected at random and put in
the holder.
Q. In your duties as port captain in Toledo, were there any
structural repairs accomplished last year that you recall?
A. Structural, no, not that I can recall.
Q. Was it necessary to repair any unloading damage
during that period of time?
A. Not that I can recall.
Q. Would it or could it have happened without your
knowledge?
A. Yes.
Q. It could have happened without your knowledge?
A. Yes.
Q. Did you supervise the installation of the life rafts
as port captain?
A. I assisted.
Q. Do you recall where life rafts were located on the
Fitzgerald?
A. Yes.
Q. Where was that?
A. There was one behind the pilot house, in a float free
operation; one behind the dining room on the boat deck;
also float free.

Q. Was there any record kept of the serial number of which life jacket was located, or any other identification of which life raft -- not life jacket -- was located in a particular place?

A. Not that I am aware of.

Q. Have you ever seen one of those life rafts inflated?

A. Yes, sir.

Q. Under what circumstances?

A. We have a training film provided by the company that went around to all the vessels, and also they had a demonstration in Toledo Harbor from some vessel at one time that I had seen it operate.

Q. Do you recall when that was?

A. No, I don't.

Q. What were your duties during "abandon ship" on the Fitzgerald? What was your abandon-ship assignment?

A. At the emergency I was in charge of launching boats.

Q. That is as first mate?

A. As first mate at the scene of the emergency.

Q. What would your time to launch the boat be as an estimate in smooth waters?

A. Eight to 10 minutes.

Q. And in rough waters, say 10 to 15 foot seas?

A. Well, as a sense of urgency it could probably be done
in the same time.

Q  All right. With your experience on the Fitzgerald in a 10 to 15 foot seaway, just as an example, loaded, could you estimate how much the vessel would be rolling with the sea dead abeam?

A  No.

Q  You don't have any feel for that at all?

A  It would be pure speculation.

Q  Well, would you speculate?

A  Between 10 and 15 degrees.

Q  Degrees. All right.

A  I would say 10 degrees.

Q  Did, during the time that you were on board the vessel, either as a first mate or second mate, did you ever experience a 10 degree rolling situation?

A  Not that I can remember.

Q  Did the vessel roll much at all?

A  Yes.

Q  Did it pitch very much?

A  Nothing that would be alarming.

Q  No. What I mean is: Could you characterize the pitch?

A  Well, if you are heading into a sea, it would be like an up-and-down motion, and it would just work slightly. It would be nothing more than I had noticed on other vessels.
Q. Did you ever observe a phenomenon known as springing?
A. Yes.
Q. On the vessel?
A. Yes, sir.
Q. Could you describe that?
A. It would be like the middle was stationary and both ends would work.
Q. Is there any difference, in your definition, between springing and bending, or is that the same thing?
A. Well, it would be on the same principle.
Q. Is there a difference between the two?
A. Pertaining to what?
Q. Well, what does bending mean?
A. When you bend something, you leave it permanently disfigured, and springing would be when it would return back to its nearly normal position.
Q. Were you in charge of the hatch covers on the Fitzgerald as well?
A. As first mate, yes.
Q. Were hatch covers always secured down?
A. Yes.
Q. At any time in your experience again, was anything less than all of the dogs down on the hatches?
A. We have a rule that we follow normally, on the Fitzgerald as well as all vessels. On the Great Lakes, we have what
is known as tarp seasons. There are seasons when
you carry your tarps.

When it is, usually September 1, and from September 1
throughout the remainder of the season, all the clamps
are on from fitout to, say, June 1, when all the clamps
are kept on.

Q. And in a period between June 1 and September 1?
A. Every other one.

Q. Would this change whether the vessel was loaded or in
ballast?
A. In ballast it would probably be fewer.

Q. What was your practice as first mate concerning the
deck vents? Were they open or closed?
A. If there was bad weather coming or we knew bad weather
was coming, Capt. McSorley wanted them closed.

Q. Which way were they ordinarily?
A. In an open position.

Q. Ordinarily open? Is there any distinction between
the ballast tank vents and the tunnel vents?
A. Yes.

Q. What was that?
A. The tunnel vents were higher than the ballast tank
vents.

Q. Were they open or closed?
A. Normally open, and in bad weather when we close the
vents, we close all vents.

Q. During the time that you were on board as either -- as a mate, did you ever pass in the vicinity of Caribou Island with Capt. McSorley on the Fitzgerald?
A. Yes.

Q. Did you discuss the shoals in that vicinity at all?
A. The trip we came down, we came down east of Michipicoten and down. The one trip that I have in mind, the last trip of last year, we came down from Otterhead, steered to the left and off of the East End Light and then down.

We did not go down between the West End Light and Caribou Island.

Q. Did you discuss the passage between Caribou and Michipicoten at all?
A. Not that I can recall.

Q. Do you recall what the weather was like in the vicinity of Michipicoten Island?
A. Yes, northeast storm warnings.

Q. Northeast storm warnings?
A. When we went down, yes, north and northeast.

Q. Do you recall whether you maneuvered down or made several course changes down from Michipicoten?
A. From Otterhead we came, as I remember, and headed down and then we made an alteration to the left after we got down
to the East End Light and then headed for a point off of
Leech Island, I believe.

Q. All right. What I was really getting at is whether
you and Capt. McSorley ever discussed the shoals in the
vicinity of Caribou.

A. Not that I recall.

Q. What was the practice with radio telephones on the
Fitzgerald with respect to radio telephones on the Fitz-
gerald? Did the mate talk on the radio telephone?

A. Yes.

Q. Did the captain as well?

A. Yes.

Q. And in circumstances where the captain was on the
bridge with the mate on watch, who would have answered a
call on the radio telephone?

A. Well, he would say, "I will get it," or "Go ahead."

Q. Without any statement by the captain, what would you
have done?

A. I would answer the phone.

Q. You would, as mate, answer the phone?

A. Yes.

Q. Did you use the standby, the battery powered phone?

A. Yes.

Q. On a regular basis?

A. Yes.
Q. Did you use it for regular communications?
A. We usually listened in. When we are in the St. Mary's River with the battery powered phone, which is in the chart room, we would put it on Channel 12 to listen to traffic on the Soo River and then we had the other phone out in the pilot house.
Q. Would you transmit on it?
A. Transmit on it? It wasn't in practice, except for a test. We might call Soo Control on it or get weather and so forth. We tested them.
Q. When you were on board the Fitzgerald in an unlicensed capacity, as a deck watchman or deckhand, were you ever responsible or involved with the repair or maintenance of vents or hatch covers?
A. Yes, sir.
Q. Was there a lot of maintenance required?
A. Usually in August, all of the hatch clamps were wire brushed, any ones that were defective were replaced and adjusted for watertightness. We went over every one of them and this usually occurred in August.
Q. How about the vents?
A. The vents, the same thing; we wire brushed them and would take turbine oil and kerosene and put them in there and make sure they were free.
Q. Do you know whether that practice has continued now?
A. Yes, I would say it would be continued.
Q. When you were on board in 1975, how many radars were there, do you recall?
A. Two.
Q. How did that operate?
A. Good.
Q. They both operated all right?
A. Yes.
Q. Did you have any radar problems at all either time that you were on board as mate?
A. Nothing that we couldn't repair on board the ship.

CDR. LOOSMORE: That's all I have.
REAR ADMIRAL BARROW: Capt. Wilson?
CAPT. WILSON: Yes, sir.

EXAMINATION

By Capt. Wilson:
Q. Capt. Webster, you mentioned the plan for loading the vessel and the loading sequence you had.
Did you have any particular ballasting sequence during the offloading or discharge of the vessel?
A. Yes.
Q. What was that or how was that determined?
Was it preplanned?
A. Yes, it was preplanned.
Q. Could you tell me a little bit about it?
A. As we were discharging cargo, you work with the dock foremen and as they are taking cargo out, you would pull so much ballast in to compensate. I think the first shot of water that you put in was six feet and then as you discharge, by the time you are completely unloaded, you have your maneuvering ballast in for leaving the dock.

Q. As you were ballasting then, you ballasted areas where the cargo was being discharged, or did you ballast equally through all tanks?

A. They unload equally, so we ballast equally.

Q. Was this essentially the same at the Hewlett rigs as the buckets?

A. I don't know; I never unloaded at a bucket dock.

Q. You wheeled for a while on the Fitz; is that correct?

A. Yes, sir.

Q. How did she handle in shallow water?

A. How fast would I be going?

Q. Well, say 12 miles an hour.

A. Good.

Q. Good?

A. Good wheeling, a good handling vessel.

Q. Do you mean both in a loaded and ballast condition?

A. Yes.

Q. During the various periods -- well, recent periods that you have been on the Fitz, did you ever have problems
with power failure, blackouts?
A  No, sir.
Q  Did you ever have any electrical problems with the vessel?
A  No, sir.
Q  Was there any heat in the tunnels?
A  No, sir.
Q  Did you normally keep the tunnel doors closed, or did they leave one open in order to keep heat in the tunnel and solve any condensation problems?
   I know some people do that because they don't like the condensation they get in the tunnels, but what was the normal practice?
A  I can't recall.
CAPT. WILSON: That is all I have.

EXAMINATION
By Capt. Zabinski:
Q  Capt. Webster, do you have your license with you?
A  No.
Q  Where was the last one issued?
A  Toledo, Ohio.
Q  How old a man are you?
A  40.
Q  And you have been sailing fairly steadily, is that right, Captain?
A. Yes, sir.

Q. And you have quite a bit of experience on Lake Superior, would you say?

A. Yes, sir.

Q. I wonder if you recall either as a mate, master or as a wheelsman, and it could be on the Fitzgerald or any vessel, whether you passed in between Caribou Island and Michipicoten?

Have you passed between those islands?

A. Yes.

Q. How many times would you say you made that passage?

A. Several.

Q. Over the years?

A. Yes.

Q. What kind of trip is that? Are there any hazards there?

A. Yes. There are hazards to be alerted to.

Q. What are they?

A. The shoals off of Chummy Bank, McMillen Bank, and then south of Michipicoten Island, I believe you have the Southwest Bank.

Q. Of Caribou or Michipicoten?

A. Caribou Island.

Q. Any vessel that passes of a shoal water, is there any difference in their handling characteristics?

A. Yes.
Q. What happens when the ship passes over shoal waters?
A. It is pretty difficult to steer.
Q. Anything else?
A. If you are going too fast, it will suck the bottom.
Q. How about the steering; is it difficult to steer a vessel in that area? Does she smell a bank?
A. Yes; when it smells a bank, it is difficult to steer.
Q. How about vibration?
A. Vibration, yes.
Q. You can feel it in the hull when you go over?
A. Yes.
Q. Can you see any noticeable difference in the springing that you mentioned for Cdr. Løosmore when you are going over a shoal?
A. It seems that around the shoal areas in a sea that they would be larger and it would certainly be noticeable.
Q. The seas are larger around shoal areas?
A. Yes.
Q. Why is that?
A. Because of the shallow water.
Q. Why is that?
A. Well, if you are going from deep water to shallow water, they have to break over something.
Q. And the seas get steeper and higher?
A. They get more violent.
Q. More confused, or what do you mean by violent?
Do you mean more confused, different directions?
A. Directionwise, yes, backwashes.
Q. They are a good thing to avoid then in rough weather; is that your testimony?
A. Yes.
Q. Did you have a Fathometer on the Fitzgerald?
A. No, not that I recall.
Q. How do you know what the depth of the water was under the keel?
A. By the chart.
Q. But how do you know on board the vessel what the depth of the water is under your keel?
A. Without a Fathometer you wouldn't know.
Q. Do you have a hand lead?
A. Yes, a deep sea lead also.
Q. Do you use it in the normal course?
A. When we thought it was necessary, yes.
Q. When would you think it would be necessary? When have you found it necessary to take soundings by hand leading?
A. When you don't know the depth of the water under the keel and you were expecting a shoal, if you were expecting shallow water.
Q. Approaching a harbor?
A. Yes.
Q. How about in an area of shoals like around Caribou or Chummy Bank?
   Would you use a hand lead then?
A. No, sir.
Q. Why not?
A. You would be going too fast, for one thing.
Q. You wouldn't?
A. It would be impractical.
Q. You could stop and get a sounding?
A. Yes, if that is what you wanted was a sounding.
Q. You could get a sounding?
A. You could.
Q. Are ships normally fitted with a Fathometer?
A. Some of the newer ones, yes.
Q. The newer ones?
A. Yes.
Q. How many ships have you sailed on that have a Fathometer?
A. One.
Q. Which one?
A. The motor vessel Wolverine.
Q. You were on this vessel about two weeks in January of this year.
   Who did you relieve as mate on there?
A. John McCarthy.
Q. And who relieved you when ——
A. We laid up then; we terminated the season.

Q. I see. January 29 was the last part of the operating season?

A. That is correct.

Q. And then you went from there to port captain in Toledo; is that correct?

A. Yes.

Q. You took care of more than one ship there, I imagine?

A. Sir?

Q. You took care of more than one ship there in Toledo?

A. Yes.

Q. What were your duties as a port captain during the winter season?

A. We reinspected the life jackets, we had gone around with the Coast Guard and looked at life jackets and did as much of the inspection that we could get out of the way. We have a crew that cleans the quarters and repaints the rooms and gets them ready for fitout.

Q. You indicated that you assisted someone. Who would that someone be?

A. That would be the U. S. Coast Guard inspector.

Q. How about ABS; are they there, too?

A. ABS is there, but outside of just having little contact with them, nothing on business.

Q. Do you recall what was done on the Fitzgerald during that
last winter layup, particularly in the way of repairs
or tank cleaning or cleaning of the cargo holds or anything
of that type?
A. Not that I can recall.
Q. Would repairs, would you know about repairs ordinarily?
A. I would, yes. I would probably see someone working;
yes.
Q. But you wouldn't be supervising it or checking on
the quality of their work?
A. No, sir.
Q. Who would do that?
A. Richard Feldtz.
Q. The work could have been going on and you might not
know about it, is that correct?
A. That is correct.
Q. How about such things as cleaning out ballast tanks,
is that normally done in layup or when would such a thing
be done?
A. It has been done during layup.
Q. Do you remember anything like that being done on
the Fitzgerald during this '74-75 -- or '75 layup?
A. No, sir, not during this season.
Q. On that trip in January, where did you go, Captain?
A. We went from Cleveland, Ohio to Silver Bay,
Minnesota, and returned to Cleveland.
Q: What did you load?
A: Taconite.

Q: Do you recall how much tonnage you took on?
A: Not offhand.

Q: Do you recall what kind -- what kind of loading arrangement do they have; do they have pockets or belts?
A: Belts.

Q: Do you recall how much water is alongside the dock at Silver Bay; do you recall what dock you were at?
A: Yes, sir.

Q: Is it more than one dock or just one?
A: One dock.

Q: Do you recall how much water is there at the dock?
A: I would say it is in excess of 36 feet.

Q: Real deep water?
A: Yes, a good loading dock.

Q: How do you know that, sir?
A: By the charts.

Q: Pardon me?
A: By the charts.

Q: Have you ever sounded around the dock?
A: Yes.

Q: How much water did you get when you sounded?
A: On the Armco, I believe in '71 or '72, we dropped a lead line over for our own curiosity.
Q. What did you get then?
A. That's where I got the 36-foot figure.
Q. But that chart wouldn't indicate -- you indicated the chart; this would be the harbor chart?
A. The harbor chart drawn by Reserve Mining Company.
Q. That would indicate 36 feet, is that your testimony?
A. I don't know what the harbor chart indicates, but that's what we got. That's where I got the figure from.
Q. We have had testimony about ships, different ships having difficulty going alongside certain loading berths or unloading berths, too, I guess; but they have difficulty when they are loading in getting alongside the dock.
Have you ever experienced this?
A. Yes.
Q. What causes that?
A. Due to shoaling and some of the cargo falling from the rigs into the water.
Q. How many feet off from the dock? Do you recall the maximum you may have had?
A. 12 to 15 feet.
Q. Is this unusual, Captain?
A. No, sir.
Q. And the ship has to force its way?
A. No, sir, not forcing.
Q. How do you bring her in, with mooring lines with the use
of engines?
A The use of engines and mooring lines.
Q You tried to come alongside the dock with your mooring lines?
A Usually, usually you know what to expect and you know that you are going to be that far off, so you wait until they start unloading some of the cargo and you come up.
Q How would I know, Captain? I have never been to one of these docks. How would I know that this dock that is laying off 12 feet is a normal docking situation?
A On the Great Lakes, if you are a master you would have been in that harbor at one time or another and you would know.
Q Just from experience?
A Yes.
Q Does the loading dock or anything give you any cautions about reduced depths of water, as you come in?
A They dredge quite frequently.
Q But my question is, the loading dock; does the loading dock give you any warning that there may be a shoaling in the berthing area?
A Not that I know of.
Q You have never received such a warning?
A No, sir.
Q Where did you unload on your trip from Cleveland?
A. The C and P ore dock.
Q. How much water is at that dock, Captain?
A. I would say 28 feet.
Q. How much draft did you have on that ship, do you recall?
A. I don't recall.
Q. It was in January so it must have been the winter draft.
A. Yes, sir; the winter draft. I don't recall it.
Q. You don't recall it?
A. No, sir.
Q. On the radios on the Fitzgerald, Captain, you indicated that there was a battery operated set and, if I understand your testimony, it was in the chart room; is that correct?
A. That is correct.
Q. Was this an AM or FM set?
A. An FM set.
Q. That would be tuned in to what channel?
A. It would be Channel 16 ordinarily. There was also an AM set, a battery set, in the chart room also.
Q. What channel was that tuned to?
A. That was Channel 51, 2182 kilocycles.
Q. Is there any procedure to test this battery operated equipment?
A. Yes, sir; the first mate usually checks the batteries
once a month and puts it on the 24-hour charge the first
day of every month.
Q. Is this the first mate's responsibility?
A. Yes, sir.
Q. While you were there the two weeks, would you have done
it during that period of time, do you recall?
A. No, sir.
Q. Did you check the batteries, do you recollect?
A. Not that I recall.
Q. Where were the batteries located?
A. I think they were under the pilot house.
Q. Was there a separate set of batteries for the AM set
or for the FM set?
A. I don't recall.
Q. Was there an automatic battery charger on the vessel?
A. Yes, sir.
Q. Was there any indication to tell you if the charge
was up or not?
A. Yes, sir.
Q. What was that indication?
A. That was a gauge, a little meter there that told you,
and then when you put it on the charge, it showed it was
charging.
Q. Why would you have to put it on charge if it was
an automatic charging system, Captain?
A. Well, when they installed those phones, they told us that once a month you should put them on a 24-hour charge and if they've gotten down, they would recharge themselves, but to be on the safe side, put it on a 24-hour charge.

Q. And to keep it perked up, so to speak?

A. Yes, he said you couldn't overcharge the batteries.

Q. But it would be very useful to the Board if you had any details as far as the batteries in the radio communica-
tion, Capt. Webster, if you had any details that you
could recall on those batteries and the radio sets for us.

A. Well, the only thing I remember is that the batteries were under the pilot house and in a container.

The water line was visible. There was the still
water nearby with a syringe to recharge the batteries.

The indicator that indicated on the charger was also there.

Q. This is not ordinarily a mate's duty, is it, Capt. Webster?

A. Yes.

Q. On all ships?

A. On the vessels I have been on.

Q. It has been?

A. Well, when I was on the J-Bird, yes. The first mate, he also puts it in the logbook, the batteries being checked.
Q. How about a check to see if the radio itself is operating?
A. Yes, sir.
Q. Do you know anything about that?
A. Yes, sir. We check our phones with another vessel and usually the test call is logged. Usually 16 is logged on what channel, and also the AM phone is logged as being tested.
Q. Do you think if the Fitzgerald lost power and the radio equipment that she had aboard that she could have gotten off a distress message?
A. Yes, sir.
Q. On AM or Channel 16?
A. Yes, sir.
Q. You just mentioned something about the radars. You said they operated okay, but if they needed any adjustment or repair, then someone on the ship would do it. Who would take care of the radar repairs on the ship?
A. The captain does it. We have a service manual aboard. Usually it is putting in a crystal or a fuse. If it is anything above that, then we have a Sperry man who comes down and checks them over usually once a month.
Q. Do you recall the radars ever being out during the period you were aboard, either one?
A. Not offhand.
Q. When you navigate in Lake Superior or anywhere, Captain, ordinarily what do you rely on?

We have had witnesses that talk about four point bearings and radar ranges and that type of thing. What do you use? How do you navigate?

A. Myself personally?

Q. Yes.

A. I use bearings. I use bearings to check them out by radar. I use RDF, radio direction finder, or what means we have available.

Q. Do they use additional four point bearings?

A. I do.

Q. Do you feel it is an accurate way to navigate?

A. Yes.

Q. Now, do you take ranges at distances with the radar, or do you just take bearings?

A. Well, we would check it out by the range on the radar.

Q. To the best of your recollection the radars on the Fitzgerald were good?

A. Yes.

Q. How about the RDF?

A. The RDF was good.

Q. Did you use the RDF?

A. Yes, sir; I did.

Q. What make was it, do you know?
Either an RCA or a McKay.

I might get my ships confused, but it was one or the other.

Q. On your life preserver boxes you indicated there were about 13 or 14 cork jackets in each box.

Were the tops made of metal, do you recall?

A. Yes, sir; they were made of metal.

Q. Were there latches or rings or closing devices on the top that you recall?

A. Yes, sir.

Q. Let's say the Fitzgerald when it sank, with the arrangement as you recollect it, would those jackets have come out of those boxes?

Would they have been lifted out of those boxes or not?

A. Yes, it is possible that they could have slid out the bottom.

They had a swing top on the bottom or maybe the pressure broke the latch, because the latch was just welded on. It was a snap latch like on a suitcase that you pull down and snap.

Q. The reason I ask this, Captain, we have located about 20 life jackets.

Your testimony was that there were two in each boat; is that right?

A. Yes, sir.
Q. And there were about 13 or 14 in the box; is that correct?
A. Yes, sir.
Q. That would give us around 18, too much for one box, and not enough for what you indicate was in the boats?
A. Yes, sir.
Q. Would you have any ideas on that? Could there be more stowed in one than another, do you think?
A. I don't think so. If it was, it would not be a significant number.
Q. If the latch on the top did not break, then the jackets actually stored on the bottom -- it wouldn't open then, and those jackets would remain trapped in the box; is that correct?
A. Yes.
Q. How else would they get out of the box if the top remained intact and the bottom door didn't open?
A. Maybe the water pressure would bust it. It was just made of light gauge sheet metal.
Q. But the bottom was wide open, was it not, screening or something?
A. Just a door with a latch on it that you pull up.
Q. On the location of the forward life raft, you indicated it was behind a pilot house?
A. As I recall.
Q. Do you recall if it was off to one side or the other or whether it was pretty well in the center?
A. Now you have me thinking.
Q. Take your time now, Captain. Just tell us to the best of your recollection.
A. I would say it might be more to the starboard side.
Q. More to the starboard.
Would you say from the location they were on that it would have floated free without any obstruction around?
A. Yes, sir.
Q. You indicated that you had seen a training film on the inflatable life raft?
A. Yes, sir.
Q. Where did you see that film; do you recall?
A. I believe it was aboard the Fitzgerald.
Q. Was there a projector aboard the Fitzgerald or did somebody bring it?
A. The company provided the projector and it was put aboard by the marine supplier.
Q. Was that during this period that you were on, Captain?
A. I believe that was 1973 if I remember correctly.
Q. Do you recall whether it was done on other ships, too?
A. Yes. It was panned throughout the fleet.
Q. Did you ever see it on any other ship, this training film?
A. Not recently, no.

Q. You say you have seen an inflatable life raft open in its inflated condition at some test facility or some other vessel that you indicated?

A. They had done it in Toledo Harbor. I believe they took one off of a Bolling boat and inflated it for the news media, et cetera.

Q. Who are "they"?

A. The Coast Guard and probably the company officials.

Q. When you say company officials, are you talking about Oglebay-Norton?

A. No, sir.

Q. What company?

A. I believe that was Bolling Cornelius.

Q. And who are they?

A. American Steamship Company.

Q. And was this sort of a public information type of thing?

A. Yes, sir.

Q. For the media you indicated?

A. Yes.

Q. Do you recall seeing an article in the paper or on television based on that?

A. Not offhand.
Q. Captain, quite a few people have come before the Board and testified, maybe some of them while you were here, they have indicated they have never seen one of these inflatables opened.

I wonder if you might have any idea as to how to train the people for this equipment?

First of all, do you think it is important that they see how this thing is inflated?

A. Yes. I thought the film provided by the Company went into every detail and described it very well. It described it very well.

Q. Do you know the equipment that is in a life raft which was shown on the film?

A. Yes. It showed you all the equipment in there and how you threw it out over the side, how the weak link will separate, and it goes into the last detail.

Q. How what will separate?

A. The painter will separate from the weak link.

Q. How about equipment? Are there any flares in the life raft that you recollect, first aid care, or what kind of equipment is in the life raft that you recollect?

A. There is a sea painter. There is a light on the top that will flash.

I believe there are flares there. I believe there is a knife in there. There is a knife and a flashlight.
Q. Is that stowed inside a special compartment?
A. A special compartment is provided.
Q. Are there any precautions that you remember about launching this life raft in extremely cold weather, let's say?
A. That I should know about or that I have heard about?
Q. Well, this training film and the demonstration.
A. Not that I can recall.
Q. Let's say you wanted to launch it over a ship and wanted to inflate it. What would be the normal procedure?
A. To grab it and throw it over the side.
Q. Would it inflate then?
A. Yes.
Q. Automatically?
A. Yes.
Q. What inflates it, Captain?
A. CO₂.
Q. Not many ships use tarps now, though, do they, on the lakes?
A. There are some left, yes.
Q. But they still call this a tarp season even though they have steel hatch covers; would that be correct?
A. We go just by the old adage, a cliche that has been handed down.
Q. What you say would also apply if the vessel were fitted with steel hatch covers, is that correct?
A. That is correct.
Q. Same precautions?
A. Yes, sir.
Q. Captain, on these vents going down to the ballast tanks, as I understand it, they are about eight inches in diameter, the vent covers?
A. That's right.
Q. Do you recall how high off of the deck they are?
A. 15 to 18 inches.
Q. Would you describe the top for me? What is the configuration?
A. (Indicating) Like a mushroom.
Q. Like a mushroom cap?
A. Yes, sir.
Q. How do you open and close this vent?
A. By turning it. That pipe is threaded on the inside. The vent cap on the inside of the vent cap, and it is screwed down in.
Q. Would you do it by hand or do you need special tools?
A. You can do it by hand.
Q. How about when the vent cap -- would you take the vent cap off completely? Could you unscrew it completely off?
A. Just for maintenance, yes.
Q  I beg your pardon?
A  For maintenance, yes.
Q  Would you have to do anything or would you have to unscrew it?
A  There is a keeper key in there, a keeper nut.
Q  All you do is unscrew that and you can take the cap right off?
A  Yes, sir.
Q  Describe these vents. Were they sturdy vents or flimsy or what would you say they were?
A  Sturdy.
Q  They were sturdy?
A  Yes, sir.
Q  Pretty heavy pipe, were they?
A  Yes, sir.
Q  Take a pretty good lick to knock them off or damage them?
A  Yes, sir.
Q  Captain, you have been on the Fitzgerald a short time this year and what testimony we have before the Board, evidently the Fitzgerald was coming down past its midship marks, and Capt. McSorley indicated that a couple of vents had become loose or were loose, open; so what vents would he be talking about?
A  They would be the ballast vents.
Q. Ballast vents?

It took on water, developing a list, the pumps are on and about three hours later it disappears from the radarscope with the Anderson following it.

To date we have recovered two lifeboats or one whole one and part of one, two inflatable life rafts, numerous jackets and life rings, but no people.

Given those facts, what do you think might have gone wrong?

A. Well, I think he came down on the basis of the testimony I heard yesterday from Capt. Cooper, the facts as I know them now, I think he came down, steered that course.

I think he set over on one of those shoals and that was the moment that his fence rail broke.

Now, when you are in a heavy sea, you hear noises from the waves hitting against the deck and it probably happened and he didn't realize it. I think he punched a whole in it in several places and I think he had the vent caps closed. It could have happened on the starboard side or maybe a little bit on the port side and as he continued going, he realized it.

He probably tried to pump his water out. He couldn't get his water pumped out. I really don't think he thought that he was in peril and I think the center of gravity overcame the center of buoyancy and they sank.
Q  Do you think he capsized or what, Captain?
Under those circumstances, what would have happened?
Would he have capsized or plunged?
A  I think plunged would be the word.
Q  The ship is in trouble, having some problems; it
would seem that the crew, some of the crew, one person from
the crew should have been alerted to something gone wrong.
A  Yes, that is true.
Now, he was coming down and you had seas washing the
deck. You don't know how far you went down. You don't know
how much buoyancy you have lost.
You might think the seas are breaking over the deck
bigger.
Q  But you can tell how much you are flooding, because
don't you have King gauges back there?
A  Yes, they are in the crank room.
Q  But you could get there and read them, couldn't you?
A  Yes, but did the oiler do it? I believe there was
a new oiler on there.
Q  If you didn't go and look at the King gauges, they
could have been in trouble without knowing it; is that
right?
A  Very well; yes, sir.
Q  But you have sailed with Capt. McSorley a long time.
He knew his vessel. You had been on that vessel how long?
A. I believe I was with him the first time in 1973 on that vessel.

Q. Captain, I am sure you have a car and I have a car. And you have a car or a piece of equipment for many years, and if something abnormal occurs, you almost sense it, isn't that right?

A. Yes.

Q. Do you think Capt. McSorley -- he had been on that ship that he was familiar with the behavior of the vessel, don't you think that he, as an experienced master, would sense that he had lost stability, as you indicated here?

A. I think he probably realized it, but he didn't realize the degree of it.

Q. Do you think, from what you are saying here, do you think that Capt. McSorley was misled because some oiler didn't look at some gauges?

Is that your testimony?

A. Would you elaborate, please?

Q. Are you suggesting that Capt. McSorley was misled because some oiler may not have looked at some gauges?

A. It is possible.

CAPT. ZABINSKI: That's all.

EXAMINATION

By Rear Admiral Barrow:

Q. Capt. Webster, pursuing that a little bit further,
don't you think in a situation like that that Capt. McSorley
would have asked for readings on the gauges and gotten them
in that fashion?
A. It is possible.
Q. Don't you think this is what he would have done?
A. When he took the list, yes.
Q. He had the list, and it was reported that he had a bad
list, he would have at least called the engine room and
had spoken to someone there and asked for readings on
the gauges there?
A. Yes.
Q. In that case, he would not have talked to the oiler.
He would have talked to whom?
A. He would have talked to the engineer.
Q. And by that means he would have gotten how much water he
had in the --
A. But the oiler could have answered the phone.
Q. But at any rate, would you think it would be reasonable
that a prudent master, having asked for readings, would
insure that he got them back?
A. Yes.
Q. Would you think that in a situation where a vessel had
a list which developed into a bad list, would have prepared
his crew by having them get into life jackets or this
sort of thing?
A. Yes.

Q. Well, if we assume that perhaps the people were in life jackets, do you have any opinion why we have not found one body in a life jacket?

A. No.

Q. Would you have any opinion?

A. No opinion.

Q. Is there a possibility that they were actually trapped inside of the closed spaces?

A. Some of them might have, but most of the debris washed up on the beach at Copper Mine Point and opposite Pancake Shoal and Whitefish Bay, and it is a very remote area. There could be bodies on the beach now. That is sheer wilderness. There could be bodies there now and nobody knows it.

REAR ADMIRAL BARROW: Let's take a five-minute recess, please.

(Recess had.)

REAR ADMIRAL BARROW: Let the record show we reconvened at 2:43 p.m. Counsel for parties in interest present as before.

EXAMINATION

By Rear Admiral Barrow:

Q. Capt. Webster, you were on the Fitzgerald for a period of about two weeks in January of 1975, but you were there,
as I understand, as a second mate also in 1973?

A. The longer part of the season, from fitout to around

August.

Q. From fitout?

A. From March until August.

Q. Can you describe for me, during that period of time
when you were aboard the Fitzgerald, the procedures as far
as boat drills?

A. We had boat drills once a week. It was noted in
the log.

We started the boat drill out with the signal for
the fire and boat drill emergency. We exercised a fire
forward, a fire aft, and then dismissal from the fire drill,
which shots of the hose were used forward and aft.

Then we cranked the boats out. The captain sounded
the "abandon ship" signal.

We went back and swung the boats out and were prepared
for launching.

Q. Did you lower the boats?

A. No, sir.

Q. Did you do this at the fitout?

A. Yes. We had done it at fitout, and we also exercised
the crew at manning the boat in fitout.

Q. You actually exercised the crew at fitout?

A. Yes.
Both boats?

One boat.

And how many people did you exercise at that time?

Well, at that time there were two different gangs that went in. These were large boats and we got all the crew that was exercised.

You are saying all the people in the crew was exercised?

Yes.

A total of how many people?

I believe there were 28 or 29 men.

How long has it been, Capt. Webster, since you were in a boat yourself?

Since last year.

What was the occasion for that?

A fitout of the motor vessel Wolverine in Lorain, Ohio.

You actually went in the water with the boat and exercised with the rest of the crew?

Yes. In fact, I notice the Coast Guard inspector here today that instructed me to go in the boat at that time.

And on the occasion of each one of these on each boat drill, it was put in the ship's log?

Yes, sir; that is correct.

And in each case these lifeboat drills were carried out
in port?

A. No, sir; they were carried out under way.

Q. Under way?

A. Yes.

Q. Under all kinds of weather conditions?

A. If there was inclement weather, and you couldn’t have a fire and boat drill in a specified number of minutes, it would be noted in the drill.

Q. What kind of inclement weather are you talking about?

A. A heavy storm.

Q. Snow or rain?

A. Snow or rain.

Q. But when you didn’t have your weekly drill, this was actually logged also; is that correct?

A. Yes, sir.

Q. And the reason?

A. Yes, sir.

Q. Who would enter that in the log?

A. The master.

Q. What happens to the logs on board the ship?

A. They are left aboard.

Q. For how long?

A. They had all of them on the Fitzgerald. We have all of them on the Ayers. They are just left aboard.

Q. None of them ever go into the office?
A. No, sir.

Q. Are you familiar with office logs?

A. Yes, sir.

Q. Who makes those up?

A. The second mate.

Q. And those are sent in to the office?

A. That is correct.

Q. You were on board the Fitzgerald in 1973 as second mate?

A. Yes, sir.

Q. And you then, during that period of time that you were there, actually made out office logs?

A. Yes, sir.

Q. And what kind of information would you at that time put in the office log?

A. Depart dock, draft -- let's assume we left Toledo and were going to Silver Bay. We would put in "Depart dock, Detroit River, Detroit River Light," we would put in the elapsed time and speed, "Huron light ship, Detour reef, depart Soo, arrive into Soo, Whitefish Point, Manitou Island, Eagle Harbor, Devil's Island; arrive dock, start to load, finish loading, draft." Then they had a notation down for the total time in port, total time loading and total time unloading; delays, fuel, cargo, and you would log practically the same lights on your return trip.

Q. And in all cases it is your testimony then that
your draft would be noted in the office log; is that correct?

A. In the office logs.

Q. On departure for offloading point and departure from your loading point?

A. Yes, sir.

Q. Is there anything else that you can recollect that you put into the office logs?

A. Yes, the speed of the vessel, the weather, and there was a column for remarks, any unusual happenings, any alteration of courses due to storm patterns on the lakes, any delays and so forth.

Q. What sort of things would you put under Remarks?

A. When I made out the office log, I would just put weather, or cause of delays.

Q. To your recollection, have you ever put a boat in the water while under way in Lake Superior?

A. No, sir.

Q. You have never seen in all of your experience at sea a boat placed in the water for a lifeboat drill?

A. Under way?

Q. Under way.

A. No, sir.

Q. You indicated earlier in your testimony that Capt. McSorley told you that he thought the ship was a good one.
Can you recall how this subject came up?

A. Yes. I asked him how did he like it and he said it was a good ship.

I talked to him; I knew him personally. I talked to him in the wintertime. He and I were personal friends.

Q. Do you think it was a good ship?

A. Yes, sir.

Q. Did you, in comparison with other vessels, note any special characteristics as far as springing was concerned that was different or more extreme than in other cases?

A. No, sir.

Q. We have had some testimony from others that Capt. McSorley expressed concern over the springing of the Fitzgerald on one occasion.

Did he ever make any such comments to you or give you an indication that he was concerned about this characteristic of the Fitzgerald?

A. No, sir.

Q. Were you concerned during your period on there about her behavior?

A. No, sir.

Q. In talking about the unloading process, I think you indicated to one of the Board members that you, in the unloading process, ballast equally to the vessel.

I believe you used the term, and I may be wrong,
that you put about six feet of water in, into the ballast
tanks at some time during the unloading process.

A. Yes, sir.

Q. When would that have taken place?

A. Well, normally after you are unloading a number of
hours. I don't recall the specifics.

Q. I think you stated that you did this equally throughout
all of the ballast tanks.

A. As you are discharging cargo, you get so far and you
put water in and by the time that you are completely
unloaded, you are completely ballasted for maneuvering.

Q. You indicated that you did this equally and that you
unload equally, as I understand your testimony.

A. That is correct.

Q. Using buckets, how do you unload equally on one of
these ships?

A. Well, I believe I said that I only unloaded Hewlett
docks.

They would start out and start taking the cargo out
of the holds to bring her up and then they just keep working
and they would move the rigs, move the rigs as they see fit.

The mate is always on deck and he is walking up and
down watching the unloading process.

Q. How many hatches did they work on at one time under
that process?
A. At Toledo lakefront it would be four hatches. At Toledo C & O it would be three hatches. At Toledo ---- or Cleveland C & P, it would be four hatches.
Q. When they start this unloading process, do they work in one part of the ship with three or four of the unloaders or is it spread out?
A. It is spread out, spaced out.
Q. Could you give me an indication of how they are spaced out?
A. I would say one in No. 4 hatch, one in No. 7 hatch to begin with, one in No. 14 or 15 hatch, and one about No. 18 or 19.
Q. Is it your testimony that doing that, you would take out part of the cargo in those hatches and then shift?
A. Shift, that is correct.
Q. Would you watch the draft at this time?
A. Yes.
Q. How would that be done?
A. The mate would usually go on the dock and look at it, if he thinks it is getting too high. If you think you are getting too high, you have to have ballast put in.
Q. The mate would actually go on the dock and check the draft marks on the hull in order to tell?
A. I have.
Q. Is it your testimony that normally under unloading
procedures, this is what you would do?
A. I would say this is the normal practice.
Q. Is this what you do?
A. This is what I did, yes.
Q. In each place where you are unloading during the
unloading process, you actually get out on the pier and
check during the unloading to determine whether or not she
is unloading evenly.
Is that your testimony?
A. I have done it, yes.
Q. Is it your normal procedure to do this?
A. As far as I am concerned, yes. If I walk down the
deck and I see that they are taking out more from one end
than the other, sure, I am going to check it.
Q. Well, let's go back just a minute to the loading process.
During the loading process, what does the mate do to
insure that he is loading, loading evenly throughout the
vessel?
A. By checking the draft.
Q. And how is that?
A. By going out on the dock and checking it out.
If he can't see the midship, well, you have the draft
board to put over the side to check out the draft on the
outboard side.
Q. Is that normally the procedure?
A. Yes.

Q. At midship?

A. Yes.

Q. How about the two: fore and aft?

A. You have to go out on the dock and walk.

Q. You actually have people go out on the dock?

A. The mate goes.

Q. The mate himself?

A. Yes, sir.

Q. Who is taking care of the loading process while he is out on the dock?

A. Like at Silver Bay, you write the numbers with a piece of chalk on the hatch, and he is putting it on there, and usually you can go on a dock and walk from one end of the boat to another in less than five minutes.

Q. So your testimony is that the mate did all this himself? He doesn't have helpers to determine what the drafts are fore and aft?

A. When you get ready to finish up, you use two mates, one on the dock and one on the deck.

Q. You use two?

A. This is the normal practice.

Q. One on the dock and one on the deck?

A. Yes, sir.

Q. But in the unloading process the mate normally stays,
you are testifying that this is what you do, on board
the vessel, if he gets concerned, or if he gets concerned
about the unloading, then you go over to the pier and
take a look at the mark?
A. Yes, sir.
Q. Do you recall in the period that you were on the
Fitzgerald in January any damage caused by either the
loading process or the unloading process?
A. No, sir.
Q. Has it been your experience that you had seen very
much in the way of damage to the coamings or the area
around the coamings, inside the coamings?
A. In this particular instance or other vessels?
Q. In the Fitzgerald.
A. Not that I can recall.
Q. There has been no occasion in which you made reports
to the loading facility covering damage that was done
there?
A. Not that I can recall.
Q. You have indicated I believe that the emergency radio
batteries were underneath the pilot house; is that what
you said?
A. Yes, sir.
Q. What is underneath the pilot house, Captain?
A. I believe they had part of the radar system under
there.

There were switch boxes and fuse boxes and the old AM radio cabinet, the old AM radio cabinet, and there were vents and piping, et cetera.

Q It is not a living space?
A Yes.

Q It is a void space of some kind?
A It is a void space of some sort. The ventilation system was under there.

Q Is that a crawl space?
A No, sir. You could stand up under there.

Q Is there a door leading in and out?
A Yes, sir.

Q A watertight door?
A A watertight door.

Q To the best of your knowledge, Captain, what was the procedure with regard to the vent caps for the ballast space in the loaded condition?

Were those vent caps left open or closed down on the Fitzgerald?

A On the Fitzgerald? In good weather, they were left open.

Q In good weather they were left open?
A Yes, sir.

Q Whether or not you were loaded or in ballast?
A. Yes, sir.
Q. And in bad weather?
A. On occasion we have closed them.
Q. On occasion?
A. Yes. - On occasion we would insist that they be closed.
Q. How would you do this when you loaded at Silver Bay
or some other loading point and were getting ready to go
to sea? What would you do with those vent caps?
A. Well, you have a weather report, and if you have
bad weather, the captain would insist that you close the
vents.

He would insist that you secure the deck, which means
to close the vents.
Q. If you had gale warnings, you would have them closed?
A. Yes, when the captain said to make sure the deck
was secured, we would close the vents because we were
expecting bad weather. This was part of it. Securing
the vents was part of it.
Q. Otherwise they would stay open?
A. Yes.
Q. Had you ever experienced an occasion when you left
port with them open and closed them en route to your
loading point?
A. Yes, sir.
Q. How long does that take?
A. We turn all hands, as I remember, I would say it would be in about 15 minutes.
Q. Do you recall whether there were general alarm bells or general alarm system batteries in the fore part of the Fitzgerald?
A. I don't recall.
Q. Do you recall if there was a general alarm system or general alarm system batteries in the after part?
A. I don't recall.
Q. How about the emergency generator?
A. The emergency generator was aft.
Q. Where was that located?
A. It would be on the starboard side of what would be the main deck.

REAR ADMIRAL BARROW: Counselor?

EXAMINATION

By Mr. Murphy:
Q. Captain, when you were describing the loading procedure at a Hewlett dock and indicating what hatches, the Hewletts would start working, and then you were asked, "And after a certain period of time," you were asked, "if they were shifted," and you said yes.
I don't understand what you mean by "shift."
Q. What shift would be made?
A. You would not shift the vessel physically; the ore
Q. Then you meant to say the ore rigs would shift?
A. Yes.
Q. You also mentioned the Toledo C & O dock. Have you had occasion to go or to be into that ore dock frequently or infrequently, or how would you describe it?
A. Not as a master.
Q. Well, in any capacity on a vessel that was taking pellets in there to load, that is what I am thinking of?
A. Yes.
Q. How would you describe it, frequently or infrequently?
A. Infrequently.
Q. What has been your experience during the periods that you had been in there with respect to the vessel getting up to the dock when she first arrived?
Is it common to have this situation occur that you described to the Board, or is it uncommon?
A. It is common.
Q. You also described for the Board the practices with respect to fixing a radar as to minor adjustments and also with respect to notifying, I think you said, the Sperry people if there were more than a minor adjustment. Would you tell us what the practice was aboard the Fitzgerald with respect to reporting malfunctions or
reporting needs for repairs?

A. We send in a message to our office, which is sent in. It is called a morning message. It is sent in and it must be sent in by 7:00 o'clock in the morning and you will wire for need of radar service and it is always provided at your next port.

Q. Is that done on a daily basis?

A. The morning message is sent in every morning.

Q. Right at the early part of your testimony you were asked the question as to whether the Fitzgerald rolled much and I see that your answer was yes.

Would you elaborate on that, please, what you meant by that answer?

A. When you are in a heavy sea, in heavy weather, it rolled, not -- it wasn't in excess of other boats I have been on. I mean, it is not like she had an unusual characteristic for rolling.

I mean, when you are in a sea you are going to roll.

MR. MURPHY: Can I have a moment, please, sir?

REAR ADMIRAL BARROW: Off the record a moment.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

MR. MURPHY: I have no further
questions.

REAR ADMIRAL BARROW: Anything by the Board?

CDR. LOOSMORE: Yes, sir.

EXAMINATION

By Cdr. Loosmore:

Q. Captain, the springing phenomenon that you have described, does that occur more in heavy seas than it does in lighter seas?

A. I would say more in heavy sea.

Q. Does it depend upon the course of the vessel with respect to the sea?

A. I would say yes.

Q. You make efforts to change course to avoid it?

A. Yes, it seems that if you can put the sea approximately 45 degrees on either bow, you can alleviate this problem.

CAPT. ZABINSKI: What condition are we talking about here?

CDR. LOOSMORE: Springing, sir.

CAPT. ZABINSKI: Springing? Thank you.

By Cdr. Loosmore:

Q. Is it predominantly loaded or in ballast?

A. I would say in ballast.

Q. You mentioned a room called a crank room; is that what you said?

A. Yes.
Q. Where is that?
A. That would be in the bilge. It would be below the main deck.

Q. In the engine spaces?
A. Yes, below the engine spaces.

Q. Is this an ordinarily manned space?
A. No.

Q. Where is the crank room with respect to the ballast pumps?
A. The ballast pumps are in the crank room, the openings for opening your valves to pump out your ballast or pump in, whatever the case may be.

Q. That is in the crank room as well?
A. Yes, sir; and the King gauges are there also.

Q. Can you operate the ballast pumps from any other space?
A. I don't think so. I am not an engineer; I haven't spent much time in the engine room, but I don't think so.

Q. During the unloading process which you have described, who decides where the Hewletts start?

A. Does the ship decide or does the dock decide?

A. I think it is a joint agreement. You are in contact with the dock foreman at all times.

Q. What is the unloading process, then? You come alongside and who is in charge of unloading on the ship?
A The officer on watch.
Q How does he and whoever it is on the dock determine where the process will begin?
A Well, you get into the dock. You tell the dock foreman, and he comes on board and you give him the bill of lading, and I would say most of these guys have been operating with these Hewletts in these ports and have been there for 20 or 25 years and so they start.
If they are not starting in the right place, you go and tell them and they change it over.
Q How would you know if they are not starting in the right place?
A By looking. If he is not right in the hatch where he is supposed to be, you tell him.
Q You have a predetermined plan that says that the right hatch is the particular hatch, or what?
A Why is it you would start in No. 6 rather than No. 7 or the other way around?
A Well, like No. 6 hatch, you would probably start there and that is where most of your cargo is. It is in the shoulders of the vessel. You don't have it all on one end or all in the middle, so it is in the shoulder of the vessel. So that is where most of your cargo is carried.
Q You used that phrase before and I was going to ask you about that, too.
What do you mean by shoulders of the vessel?

A. It would be one-quarter of the way from forward down and one-quarter of the way aft. That would be like the shoulder of a vessel and that would be around your holding hatches, maybe two hatches on the other side where you get more cargo in.

Q. Let's talk about the forward shoulder then, which is roughly at a quarter length of the vessel; is that correct?

A. Yes, I would say yes.

Q. Is there normally more cargo in the hatches forward of that or less?

A. This area -- it would be in this area. Let's take two hatches on each side. This is the area where the cargo -- where you carry your most cargo.

Q. And what do you carry in the hatches forward to that?

Is it greater or less?

A. I would say less.

Q. And hatches aft?

A. It would be less.

Q. Where would the peak begin as you move aft?

A. About on the Fitzgerald, it would be about 14 hatch, and more aft until 16 or 17 hatch.

Q. From there to the 16 hatch on aft, what happens?

A. You usually carry a little less.

Q. Would you have any idea from your experience on the
Fitzgerald how much cargo was located in the hatches at the shoulders?

A. No, sir.

Q. Would you have any idea what kind of a percentage of variation there would be in the shoulder to the middle?

A. No, sir.

Q. Would there be twice as much cargo in the shoulders?

A. I would not know. I was first mate and I loaded the vessel on the first trip. I was on the first trip in 1975 and I was second mate before that and the first mate took care of that; so I only loaded that boat once.

Q. You presently are master of a vessel. Is that vessel a self-unloader?

A. A self-unloader.

Q. And do you do this same thing on your vessel?

A. Yes, sir.

Q. Do you have a feel for how much difference there is between the load at the shoulders and the load on midship on your vessel?

A. Percentagewise?

Q. Yes.

A. Yes.

Q. Roughly what would that be?

A. I would say 66 per cent and then 33 per cent in the middle or say 30 per cent in the middle.
Q. All right. Then if you had 66 per cent at the shoulder and 33 per cent in the middle, does that mean you have twice as much cargo at the shoulders as you have in the middle? You have two-thirds of cargo forward at the shoulder and one-third at the middle?
A. I would say it would be two-thirds and one-third, two-thirds on the end and one-third in the middle, but what I am trying to say -- I think you are trying to confuse me.

Q. No, sir; I am not. I am trying to understand the process.
A. Maybe I am trying to confuse you, one or the other. I don't know which.

If I had a diagram, I could show you better.

Q. Do you think you could sketch one for us?
A. Yes.

REAR ADMIRAL BARROW: Let's go off the record.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record, please.

CDR. LOOSMORE: All right. I have a sketch that Mr. Webster has just prepared and which we had him sign and date.

Q. Capt. Webster, would you tell us what this represents
now?
A. This would represent the cargo hold of the vessel
and the way the cargo is normally distributed.
Q. Is the forward bulkhead of the cargo indicated?
A. Yes.
Q. And at the left side of the document?
A. Yes.
Q. And the after head?
A. Yes, here (indicating).
Q. What is the cargo now?
A. The cargo in here (indicating).
Q. Indicating the wavy line?
A. Yes.
Q. And what are the shoulders?
A. Here (indicating).
Q. Indicating a vertical mark?
A. Yes. Here (indicating).
Q. And what does this taper at the left edge indicate?
A. Down toward your forward bulkhead.
Q. So as you previously testified, there is less cargo
forward of the shoulder than at the location of the shoulder?
A. Yes, sir.
Q. And is there a similar thing aft?
A. Yes, here (indicating). It kind of tapers down
here.
The shoulders are mostly in where the holding hatches are, what is considered the holding hatches.

REAR ADMIRAL BARROW: Let's go off the record again.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

CDR. LOOSMORE: Sir, I would like to request that this sketch be marked Exhibit 92 for identification.

REAR ADMIRAL BARROW: Mark it 92 for identification.

(Exhibit 92 was marked for identification and made part of the record.)

By Cdr. Loosmore:

Q. Capt. Webster, would you indicate on there where the forward bulkhead of the cargo, of the cargo hold is by marking f-w-d?

A. (Witness marking.)

Q. And the aft by a-f-t?

A. (Witness marking.)

Q. Is it your testimony that this is the general pattern of the loading done on the Fitzgerald as you recall it?

A. As I recall it; yes, sir.

Q. Do you recall which hatches were used as holding
hatches on the Fitzgerald?

A. It would be a stab in the dark.

I would say it would be in the vicinity between

7 to 9 hatch forward; from 14 to 16 hatch aft, in that
area there.

Q. Would you mark that wherever that would be appropriate
to that particular time, for example, the 7 to 9 forward
and the after hatch 14 to 16?

A. (Witness marking.)

Q. Now, what is a holding hatch?

A. A holding hatch is a hatch that you put cargo in
that will put it down at one end without changing the draft
at the other end.

Q. And when is this process used?

A. Near the finish of the load, right at the finish of
the load.

Q. What is the purpose?

A. So you can put your vessel down to your draft
forward without changing your draft aft. Or vice versa.

CDR. LOOSMORE: Thank you, Capt.

Webster; that is all I have.

REAR ADMIRAL BARROW: Anything else

by the Board?

EXAMINATION

By Capt. Wilson:
Capt. Webster, in your period of time with Capt. McSorley, you mentioned that he was, I believe that you mentioned he was a prudent seaman.

How frequently did Capt. McSorley require the position fixing of the vessel? Did he have any --

A. When he came in the pilot house and asked you where you were, you had better know.

Q. He demanded that you know where you are?

That was his --

A. He came in and asked you where you were at. It was in your best interests for your job to know.

(Laughter.)

Q. Was, as a matter of practice, the time that you were with him, was he the kind of a master who would want to give wide berth to shoal water?

A. He was not an overcautious man. He was not wishy-washy cautious, but as I said, he was a prudent mariner.

He didn't take unnecessary chances.

(N.B.: See next page.)
Q You mentioned you were Mate on the Fitzgerald in 1973 from fitout to midseason.

Where did she fit out that year?

A Superior, Wisconsin.

Q Do you recall if there was any work that had been done up there? Otherwise, was she in the yard or was she just laid up in Superior that year or do you recall?

A I have been on a lot of vessels since then. It is difficult to go back that far.

Q The king gauges, how were they mounted? Where were they located physically?

A As I recall, they were located on the forward bulkhead in the crankroom and they were practically at waist level.

Q Where in relation to the ballast manifolds were the king gauges located?

A Just forward of that.

Q So as you stood at the ballast manifold, you saw the king gauge.

A Yes, sir.

Q How were the gauges labeled?

A I don't recall.

Q You don't recall?

A But, they were labeled. I have seen them. I remember seeing labels on them.

Q You mentioned, I think, that they had a new oiler.
A. Yes, sir.
Q. Do you happen to know where he came from?
A. I believe he came from the Steamer Ashland.
Q. Ashland?
A. Ashland, yes.
Q. There has been some discussion previously and a little bit today concerning list on a vessel. Have you ever sailed with a list?
A. No, sir.
Q. Have you ever been on a vessel either in a licensed capacity or otherwise where you had a list for any reason, be it damage or whatever?
A. For any reason?
Q. Yes.
A. Yes.
Q. Do you have any idea of how much of a list you could surmise, without measuring, just from any past experience you have had?
A. Well, you would know what you are listing, one way or the other, yes.
Q. As much as an inch or two inches -- or maybe you have had no experience with it.
A. Oh, you would know when a boat is listed. You would certainly know, but as to call it right away how many inches, I couldn't tell you.
There has been a great deal of conversation concerning shoal water over the last several days and when people talk about shoal water, what are we talking about? What do you consider to be shoal water or shoals? What type of depth?

A: What type of depth?

Q: Yes.

A: Anything from the surface down to an area, say, 50 feet.

Q: So anything less than 50 feet you would consider shoal water?

A: Yes, sir.

Q: There was also some conversation earlier concerning roll; the vessel did or didn't roll much. I am still a little bit confused.

When you say roll, rather than trying to put it in degrees of roll, is this such as to roll a pencil off of a table or egg off of the table or coffee out of the cup?

A: That would be a roll.

Q: That would be if you splashed some coffee out of your coffee cup?

A: Almost. When a pencil rolls off of the chart desk, you are in a roll.

Q: That's what you would consider a roll?

A: Anything else is a wiggle.

Q: Is there a name that would match my coffee out of the coffee cup?
A. It is uncomfortable.

Q. That would be it? All right. Thank you.

CAPTAIN WILSON: That's all I have.

REAR ADMIRAL DARROU: Captain Zabinski?

EXAMINATION

By Captain Zabinski:

Q. During the loading operation, the chief mate outlines the other officer's sequence that he wants, what hatches he wants loaded and so forth, right?

A. That is correct.

Q. And also, if I understand your testimony, it is important to watch the drafts while you are loading, is that right?

A. That is correct.

Q. And further, as I recall your statement, you indicated that Captain McSorley to keep an eye on the draft and see that she not go over one inch hog, is that what you said?

A. I didn't say that.

Q. Then what did you say about Captain McSorley's instructions as to allow the difference between the midship and the forward and after marks?

A. He said he wanted no hog. He would give you the draft and he would say, like, he wants two inches by the stern.

Q. Yes.

A. He wants two or three inches by the stern and so you
would load 27 feet, 27 feet, and then 27-3.

Q. Did he say anything about hog or sag?

A. He said he wants no hog.

Q. No hog?

A. No hog. He said, "Don't hog."

Q. Why is that?

A. He felt that that forces -- that the weight wasn't being distributed properly where the strength of the vessel was, if you hog it.

Q. Is that bad?

A. Yes, that would be bad. A hog would be bad.

Q. How about a sag? Is that bad for a vessel?

A. No, sir. In fact, as Master on the Ayers, I insist not to hog it.

Q. Would you say an inch or two would be acceptable on a vessel loading?

A. Yes, sir.

Q. Is that normal practice on the Lakes?

A. It is normal practice for a sag.

Q. If you are an inch or two, the sag would not make that much difference?

A. No, sir.

Q. There would be no concern with respect to a sag?

A. No.

Q. But if you had a hog, you personally would be concerned?
A. Yes, sir.

Q. And an even keel is desirable?
A. Desirable.

Q. Now, on the unloading, does the chief mate outline to the mate what sequence of hatches he wants unloaded?
A. The practice is if you have a green man that comes aboard, one of the other mates stays out with him on the dock, so he can get familiarized.

You just don't turn a green man or someone who has not been experienced out on his own.

Q. How does the experienced mate know what sequence to unload the hatches? Do you tell him as chief mate, or are there instructions or what?
A. Just by walking down the deck, and you can see visibly. If they have nothing here and a lot there, there is something wrong.

Q. So you sort of eyeball the cargo?
A. Yes. You make your trip around the deck frequently.

Q. And if you are in doubt --
A. You go to the dock foreman and you say, "Let's get this straightened out."

Q. You also check the draft if you have to?
A. Yes, if you have to.

Q. What was this oiler's name that came from the Steamer Ashland? Do you recall, Captain?
A: Yes.
Q: What is it?
A: I believe it was Ralph Walton.
Q: Had he been with the company before?
A: Yes.
Q: A long time?
A: Yes.
Q: Had he been on other ships?
A: Yes.
Q: Had you been on other ships with him?
A: Yes.
Q: Is he a reliable man?
A: Yes.
Q: Has he sailed as oiler before?
A: Yes.
Q: Is there any reason for you to believe that on this ship on the Fitzgerald he may not have done what would be normal for an oiler to do?
A: It is possible.
Q: It is possible Captain McSorley didn't do something he was supposed to do?
A: Very possible.
Q: On the radar repairs in answer to counsel's question, you indicated in your daily message if you needed repairs you would include that as a line or item in the daily message?
Yes, sir.

And then there would be a radarman at the next port to fix it?

That is correct.

Now, if the ship's personnel, and I am talking about the captain or the mate or whoever took care of any radar repairs, would they in the daily messages indicate that we repaired such and such a radar or changed a tube or changed a crystal?

No.

Or a magnetron?

Well, we would not change a magnetron. I would not do it. But would the company have any way of knowing or would their records indicate any repairs that the ship's crew had done during the particular trip?

No.

So in your message, you would only indicate that you wanted that type of support when you got to the next port?

Yes, sir.

Also you used the phrase in referring to Captain McSorley that he didn't take unnecessary chances. What do you consider as an unnecessary chance?

Pertaining to what?

Well, that is what you said. That was your testimony. You said that Captain McSorley did not take unnecessary chances.
I don't know what you mean by that.

A. He would not cut any corners to gain any time if he thought it was unsafe.

He would not go full speed in a storm to get to a dock to load, or he would not race a vessel just to get there, to make time, or impress anybody or outrun another ship.

He would not roll the ship. He would not take the ship out in heavy weather unless he was caught out in it.

Q. The other captains on the lake on other steamers, do they take these unnecessary chances in operating their vessels?

A. I certainly hope not.

Q. You don't know of any?

A. I don't know of any.

Q. Do you take any of these unnecessary chances?

A. Absolutely not.

Q. So it is not an unusual thing for Captain McSorley not to take these unnecessary chances?

A. Let's put it this way: There are some men that are heavier weather men than others.

Q. What do you mean by heavier weather men?

A. People that would go out in a little rougher weather than I would.

Q. And would that be an unnecessary chance, would you say?

A. According to my standards, it would.
Q. And your testimony is then that Captain McSorley would not venture out into heavy weather?

A. Yes, sir.

CAPTAIN ZABINSKI: That is all I have.

REAR ADMIRAL BARROW: Counselor?

MR. MURPHY: No questions.

REAR ADMIRAL BARROW: Anything by the Board?

COMMANDER LOOShORE: Nothing.

EXAMINATION

By Rear Admiral Barrow:

Q. Captain Webster, we have asked you a number of questions about your knowledge with respect to the Fitzgerald and with respect to Captain McSorley.

I will ask you now if there has not been anything in our questions that you could tell us now that would help us achieve the purposes of this Board.

I will ask you that now, sir.

A. Not that I know of.

Q. Any thoughts or opinions as to the cause?

A. My opinion was stated earlier.

REAR ADMIRAL BARROW: Thank you very much.

You are excused. You are cautioned not to discuss your testimony with anyone other than counsel until the conclusion of this investigation.

Exhibit 92 for identification is received in
evidence.

(Recess had.)

REAR ADMIRAL BARROW: Let the record show we reconvened at 3:59.

Commander Loosmore?

COMMANDER LOOSMORE: The Board calls Mr. Gerald Lang.

Would you stand, please?

GERALD LANGE called as a witness, and being first duly sworn, was examined and testified as follows:

EXAMINATION

By Commander Loosmore:

Q Would you be seated, please.

Would you please state your name, address and occupation?

A My name is Gerald R. Lange, spelled with an "e," L-a-n-g-e, 516 West Orange Street, Duluth, Minnesota.

My occupation, as of January 1st, 1975, I am a retired officer from the Oglebay-Norton Company.

COMMANDER LOOSMORE: Mr. Keenen, would you identify yourself?

MR. KEENEN: Roman T. Keenen, attorney for Mr. Lange.

REAR ADMIRAL BARROW: Mr. Lange, the purpose
of this investigation is to determine as best we
can the cause of the sinking of the SS Edmund
Fitzgerald on the 10th of November, 1975.

We have called a number of people. You have
listened to some of the testimony yourself. Our
basic purpose is to determine from people who knew
the Fitzgerald and knew the people who sailed on
her, things that might assist us in our purpose of
determining the cause.

You are requested to answer the questions as
completely as you can, but without volunteering
additional information, to speak as fully and
concisely as you can, so that we can get a complete
record.

Commander Loosmore?

By Commander Loosmore:

Q. Mr. Lange, do you hold a Coast Guard License or

Document?

A. Yes, I do.

Q. Do you have that with you?

A. Yes.

Q. May I see it, please?

(Handing to counsel.)

COMMANDER LOOSMORE: I have License No. 398609

issued to Gerald R. Lange, Master, Steam and Motor
vessels of any gross tons upon the Great Lakes and connecting tributary waters as far east as Anticosti Island and also First Class Pilot upon the Great Lakes between Duluth, Gary, North Tonawanda and Tibbetts Point, Radar Observer, issued December 18, 1973 at Toledo, Ohio. It is Issue 5-7.

The reverse shows the signature of Gerald R. Lange, BK, 201522, date of birth, 14 September 1920.

Let the record show I returned your license,

Mr. Lange.

Q Mr. Lange, I believe you said you were a retired officer? Did you ever sail as Master?

A Yes.

Q Did you ever sail as Master on the Fitzgerald?

A No.

Q Did you ever sail under that license in any other licensed capacity on the Fitzgerald?

A No, just as First Mate.

Q Did you ever sail on the Fitzgerald at all?

A Yes, sir.

Q And in what capacity?

A As First Mate.

Q During what period, sir?

A 1965, 1966, 1973 and part of the season in '74.
Q. And all of those periods were as First Mate?
A. Yes.
Q. Was it for the entire season in 1973?
A. Yes.
Q. All right. And what part of the season in '74?
A. It was April until June and also September to December.
Q. And all of this in '74 was also as First Mate, was it, sir?
A. Yes.
Q. How long did you sail as a licensed officer on the Great Lakes?
A. Since 1944.
Q. And was that continuous?
A. Yes, sir, more or less.
Q. And how long did you sail in any capacity on the Great Lakes? When did you start sailing at all?
A. In 1939.
Q. Who was Master on board the Fitzgerald when you were aboard in '73?
A. Captain McSorley.
Q. And in 1974?
A. Also Captain McSorley.
Q. Did you feel you knew him well?
A. Yes.
Q. Did Captain McSorley ever express to you any of his feelings about the Fitzgerald?
A. No.

Q. Would you characterize Captain McSorley as a cautious sailor?
A. Captain McSorley was a professional sailor who knew his own capabilities and knew the capabilities of his ship, and he operated accordingly. He was cautious.

Q. Would you characterize him as overly cautious?
A. No, not overly cautious.

Q. Did he ever talk to you about any problems that the vessel was having?
A. No.

Q. Was he the kind of man that you would have expected to talk over problems?
A. If it were problems that might concern me, yes, but his own problems, he would keep them to himself.

Q. How about problems about the ship which concerned you both?
A. Our jobs are so much different. His problems wouldn't necessarily have to be mine. He has other responsibilities in operating that ship and his job carries more responsibility than mine does.

Q. Does he strike you as the kind of person who would have talked to other masters about the problems on his
own ship?

A. I don't believe so.

Q. Was he a talkative person or quiet?

A. No, he was more on the quiet side.

Q. In the time that you were on board the Fitzgerald, during 1973 or '74, were you standing watches?

A. Yes.

Q. Did you, at any time during that period or any time that you were a First Mate, ever make a transit through the area between Caribou Island and Michipicoten Island?

A. I may have. I don't really recollect. I have been on so many ships that I get confused between the ships that I have been on and the Fitzgerald because I was with Captain McSorley on another ship and they just seem to entwine a little bit.

Q. Let's rephrase it then.

At any time that you were a mate to Captain McSorley, did you travel through this area?

A. Yes.

Q. Did you and Captain McSorley discuss the transit through that particular area at all?

A. When I was on watch, why, we would discuss the passage between the islands.

Q. Can you recall what his general attitude toward that was?
A. Well, it would be no fear there, but he didn't like to get the Fitzgerald too close to any shoal waters and he would like to stay well off of the land.

Q. Did he have a rule of thumb about how far from the land he wanted to stay?

A. No, that would be more or less according to conditions that prevailed at that time.

Q. What sort of conditions do you mean?

A. Well, your wind direction, your sea direction.

Q. Was he the kind of sailor that would try to take his ship in and sneak it behind an island to get a lee? Did you ever do that?

A. No.

Q. You did not ever do that?

A. No.

Q. Did you, as a mate, have confidence in the Fitzgerald to be able to withstand any weather that came alone?

A. Very much so.

Q. Do you think Captain McSorley shared that confidence?

A. I do.

Q. Do you recall any discussion at all about the shoals north of Caribou Island that you and Captain McSorley might have had?
A. I don't recall asking or talking too much about them.

Q. How many times would you say you have been through there?

A. Perhaps three. That would be upbound and downbound, both.

Q. Did you ever tip ship while you were on board the Fitzgerald?

A. Yes.

Q. Were you involved in that as First Mate?

A. Yes, sir.

Q. Do you recall the circumstances of doing that?

A. For a wheel examination.

Q. How would you do that? Would you do that with ballast and cargo?

A. No. That was mostly done in Toledo at the loading dock, and it was done with cargo.

Q. It was done with cargo?

A. Right.

Q. Would it be done during the unloading?

A. Yes.

Q. Would you stop the unloading?

A. Yes. We would have occasions where we did stop until the examination was completed.

Q. And at other times, would you just let the
unloading proceed?

A  Yes.

Q  You let the unloading proceed?

A  Yes.

Q  Did you have a guideline on the ship as to the
    instruction as to how to do that?

A  No.

Q  Then how did you know what to do?

A  Well, you would go more by the draft and also the
    visual view of the ship.
    
    You would watch the wheel, and when it came up
    high enough, whoever examined it, they would go down
    and check the wheel.

Q  Was it necessary to do anything different from
    your ordinary off-loading in order to do this?

A  Oh, yes.

Q  What was different about it?

A  You would have to unload the cargo and the aft
    end of the ship.

Q  Can you recall how much cargo you would leave up
    forward, say, as a rough percentage of the total load?

A  I couldn't tell you that.

Q  Can you picture the arrangement?

A  It would be a No. 1 compartment, but I couldn't
    estimate in tonnage.
Q: The No. 1 compartment. Do you mean the No. 1 hold or the No. 1 compartment?
A: The No. 1 hold or compartment.
Q: Do you know how many times you did that?
A: I don't know.
Q: Would you say you did it several times?
A: On the Fitzgerald, no.
Q: Did you do it just once?
A: To my knowledge, yes.
Q: Was it the kind of thing which was done frequently?
A: On this particular vessel or all vessels?
Q: Let's talk about this particular vessel.
A: They would like to do it about twice a year.
Q: Do you recall whether there was any instruction which required it twice or three times or whatever?
A: I am not sure if it was company policy, but I would assume so.
Q: How did you know when to do it?
A: That would be up to the discretion of the chief engineer. That is his responsibility.
Q: Did you as First Mate have any responsibility for the loading and unloading?
A: Yes, sir.
Q: Did you have any responsibility for damage which took place during loading or unloading?
A. Yes, sir.

Q. What was that responsibility?

A. We would get together with the dock people and make out reports.

Q. Was that a common occurrence, the damage during unloading?

A. Not common, no.

Q. During the two years, for practically two years in which you were the Mate on the Fitzgerald, how many times would you say there was damage while unloading?

A. I don't recall any.

Q. How about damage loading?

A. No.

Q. Would damage while loading be common?

A. No.

Q. Where did you generally load?

A. Silver Bay.

Q. Did you ever load at a chute dock?

A. Yes.

Q. And do you recall which one?

A. Misebe, Duluth.

Q. Did you have unloading instructions?

A. I went by what the mates previous to me had loaded the vessel, but I had my own versions.

Q. With your own interpretations on it?
A. Well, I mean, any changes, I could change -- I wouldn't go strictly by what the other mates did.

Q. How did they differ?

A. Mostly it would be tonnagewise.

Q. What did you do about your draft? Was draft important during loading?

A. Oh, yes, draft is always important.

Q. Why?

A. How are you going to tell when your ship -- when she is raked too much? Well, that would be the consideration, the rake of the vessel.

Q. What do you mean by a rake?

A. One end would be higher than the other. That would be considered a rake.

Q. Would that be a desirable or undesirable effect?

A. In most cases, desirable.

Q. Desirable?

A. Right.

Q. How much rake would be desirable?

A. From two to three feet.

Q. Are you saying that you would sail with --

A. No, no. You are still in the loading dock.

Q. All right.

A. I mean, now your sailing on me.
Q All right. Let's get back together, then.
A All right.
Q Does rake represent a difference in draft, forward and aft?
A Yes.
Q So you are taking about a two or three foot difference in draft, which occurred during a loading?
A Right.
Q Would you also do that during unloading?
A No.
Q Why would you rake during loading?
A Because you are taking out ballast. In order for you -- your ballast sections are on the after side of your tanks and in order to get the water back, the suction, you would keep it in a rake.
Q I see, and then what would you sail with?
A Normally one or two inches.
Q Of rake?
A Rake.
Q Would you sail with any hog or sag?
A No.
Q None at all?
A Well, maybe sag, but not hog.
Q Was that your idea or Captain McSorley's?
A No; Captain McSorley told me that he would prefer
to have some sag, instead of hog.

Q. Did he give you any limitations on that?
A. No, he said -- well, he did tell me one or two inches. That's all.

Q. How did he feel about hatch covers? Were the hatch covers always on when the vessel sailed?
A. Usually, yes.

Q. Usually yes? Under what circumstances would they not be on?
A. Well, in the middle of the summer we might take off one or two hatches still being put on, and we are in the process of putting on the hatches when we leave.

Q. Do you recall other than the summertime when the vessel waited at the unloading dock?
A. Yes.

Q. How about hatch dogs?
A. As they're putting on hatches, the other men are putting on the dogs, so they are practically keeping up with the fellows that are putting on the hatches.

Q. How many people in the crew would do that?
A. It would be five.

Q. Is it necessary to dog every hatch or put down every dog, I mean?
A. During the tarp season, I put down all the clamps. That would be in the spring and fall.
Q. Was that your idea or Captain McSorley's idea?
A. I would say that was my idea.
Q. Did he ever express any opinion on it that you recall?
A. Not too much, no.
Q. Did he pay much attention to the deck procedure at all?
A. Oh, yes, he did.
Q. Or did he just kind of leave that to you?
A. I imagine he had faith in my ability and he just let me go ahead and do the job. He figured that I could do the job and wouldn't interfere with me.
Q. How long had you known him when you sailed with him?
A. It was quite a while. I was with him in 1953. That was the first time that I was with Captain McSorley, and during the time that I was with the Captain we had meetings with our company in the spring and I knew him. We conversed then and then I was with him for two years on the Armco and two years on the Fitzgerald.
Q. When were you with him on the Armco?
A. I believe it was '70 or '71.
Q. During any of the period of time when you were with Captain McSorley, did he ever establish with you formally or informally any procedures as far as the use
of radio telephones was concerned?

What I am getting at, did he want to use them himself or did he have you use them or what was the procedure there?

A. There was no set procedure of using the telephone.

Q. In all the time that you were with him, if a call -- if he wanted to call somebody about something and had come to the bridge, would he have done it himself or would he have you call?

A. He would normally call himself.

Q. How about if an incoming call came, would he take it or would he have you take it?

A. Well, we normally -- if there was a call from the office, then he would talk to them, the office, or if it was just some other ship or something like that, why, then we would take the call and if there was any message, then, we could deliver the message to him.

Q. During the time that you were Mate to Captain McSorley on the Armco or Fitzgerald, did you ever have any difficulties, any emergency situations occur?

A. No.

Q. None at all?

In your duties as First Mate, were you also responsible for the deck hatches, deck sounding tubes, deck vents and deck sounding tubes?
A. Yes.

Q. What did you generally do with them?

A. Usually in the summer before the fall season set in, we would take the vent covers off, our vent bells, wire-brush and clean the threads, oil them, and I would do the same with the hatch dogs.

Q. Were the vents normally open?

A. Yes.

Q. When would you close them?

A. At the sign of bad weather, and then we would close the vents. It was when we got a bad weather report.

Q. Can you pump a tank if the vent is closed?

A. No.

Q. You can't?

A. It would create a vacuum in there.

Q. Did you ever have to send a crew out once you were underway in order to close vents?

A. Well, yes.

Q. And do you recall doing that?

A. I don't recall.

Q. Were you the mate on board when the new load line came out?

A. Yes.

Q. Did that make a change as far as the loading procedures were concerned?
A. Just the increase in tonnage.
Q. Where did you put the increased tonnage?
A. I spread it out throughout the ship.
Q. Evenly?
A. Pretty much so.
Q. Did you receive any instructions on how to do that?
A. No.
Q. Did it change anything else in order to get the increased load line?
A. It increased the draft.
Q. Was there any physical change on the ship that you recall?
A. No. Do you mean was there anything done to the ship, a requirement?
Q. Yes.
A. Oh, yes, the vent bells to the tunnels were raised.
Q. Where were they located?
A. On the spar deck.
Q. Fore or aft?
A. There is a set fore and a set aft.
Q. Port or starboard?
A. Two on each side.
Q. They were raised?
A. Raised.
Q. How high, sir?
A. I believe they went from about 14 or 15 inches and were raised to about 32 or around the 30-inch mark.

Q. Do you recall when that was done? Do you recall what time of year that was done?

A. Was it during the operating season or before?

Q. How was that done during the operating season?

A. It was during the operating season.

Q. What kind of process was involved?

A. At the unloading dock.

Q. Well, it would be just a matter of welding, extending the vent pipe to the required height by the American Bureau of Shipping.

Q. Did this vent have a cover on it?

A. Yes, sir.

Q. What did they do about the cover?

A. The cover was attached, but the pipe was raised.

Q. So now the tunnel vents stuck up above the other vents?

A. Yes.

Q. Where were the tunnel vents in respect to the hatches?

A. The tunnel vents were out on the wing of the deck.

Q. Were the fore or aft of the hatches?

A. I can't recall, but I think they were between a couple of the hatches.
I don't recall which ones. They were out on the wing between the hatches.

You have 24 feet between the hatches, and they were in that area, the 24-foot area.

It was well out on the gunnel.

Q. Were they higher or lower than the fence rail?
A. They were a little lower.

Q. With this change in the tunnel vent, did that come under your responsibility then?
A. No.

Q. Who saw to it that that was done properly?
A. I believe one of the men from the office was down there and also a man from the American Bureau of Shipping was there during the installations.

Q. Do you know who that was?
A. I can't recall, no.

Q. Did you know him at the time?
A. No.

Q. What were your duties as mate in an abandon-ship situation?
A. I was at the scene of the emergency, and also I was responsible for seeing that the boats were being prepared for launching.

Q. Did you ever launch a boat?
A. Yes.
Q. In a drill?
A. In a drill.
Q. Did you ever launch one for real?
A. No.
Q. About how long would it take to launch a boat?
A. Between 8 and 10 minutes.
Q. Would it depend on whether you were out in the open lake or in port?
A. No.
Q. Do you recall the inflated liferafts on the Fitzgerald?
A. At the time I was there, yes.
Q. Well, yes, sir, of course.
They were moved during the time they were there, weren't they?
A. I don't recall.
Q. You don't recall that?
A. No.
Q. How many were there?
A. Two; one forward and one aft.
Q. Did you ever see one of those inflated?
A. I did, but it was so many years ago that I don't recall exactly.
Q. What kind of radar did the Fitzgerald have when you were aboard?
A. Sperrys.
Q. Plural, more than one?
A. Yes.
Q. How many?
A. Two.
Q. How did they operate?
A. Good.
Q. Both of them?
A. Yes.
Q. Did you use those for navigation?
A. Yes.
Q. Were they your primary means of navigation?
A. They were mine, yes.
Q. Did you use the radar to determine a plotted position?
A. Yes.
Q. When you were on your watch?
A. Yes.
Q. Did you always plot the position?
A. Yes.
Q. We have had some testimony here that indicated it is not necessarily common practice to plot every position on vessels making the same trip from one point to another in the Lakes.
   Is that your experience as well as that it is not
a common practice to plot?

A Well, Captain McSorley would want you to plot it, and he was likely to come into the pilothouse at any time and ask you where you were, and you better know.

COMMANDER LOOSMORE: That's all I have, sir.

REAR ADMIRAL BARRON: Captain Wilson?

EXAMINATION

By Captain Wilson:

Q You mentioned that you would close the ballast vents in heavy weather.

At what point would you close the vents?

A When you received a weather report that predicted anything in the storm area.

Q So you would actually close the vents in advance of the bad weather that was forecast?

A Yes.

Q You mentioned the tunnel vents.

You said there was a set at each end.

Is that one vent at each end of each tunnel?

A Yes.

Q Just one at each end?

A Yes.

Q During the time you were on there, either before or after the height of the vents, these tunnel vents that were raised, were they ever raised or damaged or
struck by loading or offloading gear?

A. No.

Q. They were pretty well protected? Could they be damaged?

A. Anything is possible.

Q. They were in such a position that they could have been?

A. They were out of the way of the unloading process.

Q. If either of the vents, any of the vents were to be struck by, say, the loading gear, would it have to damage the fence rail at the same time, otherwise, could they be struck by a chute, for instance, without the chute contacting the fence rail?

A. I don't quite understand the question.

Q. Would it be possible from the location of the tunnel vents for the vents to be struck by a loading chute? Would that be possible?

A. No.

Q. It would not?

A. No.

Q. A chute could never contact it?

A. No.

Q. You mentioned that Captain McSorley, any time he came in and wanted to know your position, you had better know where you were.
Did he have a particular preference for the means of navigation?

In other words, you mentioned that you preferred radar navigation. Did Captain McSorley prefer that over, say, the use of radar beacons or bow beam bearings?

A. I would say yes.

Q. He preferred the radar navigation?

A. Yes.

CAPTAIN WILSON: That is all I have.

EXAMINATION

By Captain Zabinski:

Q. Mr. Lange, how old are you, sir?

A. Fifty-five.

Q. You say you retired. You are retired from Oglebay-Norton, is that right, from the Oglebay-Norton Company?

A. That is correct.

Q. And do they have a pension system that requires you at age 55 to retire?

A. You can either retire at 30 years or more of service.

Q. And you had been with them for 30 years?

A. Thirty-three years.

Q. And you started out as what?

A. AB deckwatch.
Back in 1939?

No, 1941.

Didn't you say or indicate that you started in 1939?

I started sailing in 1939.

And who did you start with?

The Tomlinson Fleet.

Had you sailed as Master, Mr. Lange?

Yes, I had.

How long? What is your experience?

I got my first ship in 1957, and I sailed more or less as Master until 1964.

And you sailed as Mate pretty well over the last years, is that right?

That is correct.

What is that, is that seniority or what?

No, I had a health problem and it was necessary for me to request the company to put me back as First Mate. It was strictly voluntary.

Can I ask what the nature of that problem was?

I don't know if that would concern the Board or not.

Something that affected your duties as Chief Mate?

No.

Or as a seaman, as a professional seaman?

No.

Did you know Captain McSorley well?
A. I think so, yes.
Q. Did you know him personally?
A. No, my only contact would be on the ship.
Q. What was Captain McSorley's health when you sailed with him last in 1974?
A. Very good.
Q. Do you know for a fact that he was in good health?
A. Well, I couldn't prove it. I am not a doctor.
Q. To your knowledge, do you know if he was under any kind of medication or taking any kind of medication?
A. I don't know.
Q. You don't know? Was Captain McSorley a temperate man?
A. Yes.
Q. Did he drink, to your knowledge?
A. Actually, no.
Q. "No," you don't know, or "no," he didn't? Or don't you know, or he didn't?
A. You asked me if I knew and I said, "No, I don't."
Q. Did you ever see him take a drink?
A. No.
Q. You considered him a professional seaman?
Q. That is correct.
Q. Had a lot of confidence in his ability and judgment?
A Very much so.

Q Circumstances have been developed here by witnesses as to the Fitzgerald that it was coming down between Michipicoten and Caribou Island. Captain McSorley called the Captain on the Anderson and indicated that he had a missing or broken fence and a couple of broken vents. He was taking on water, had pumps on, a couple of pumps on, and developing a list or had a list, and two or two and a half hours later, the ship suddenly disappears on the radar scope of the Anderson. 

The vessel is lost.

You knew Captain McSorley. You described him as a professional seaman. You said he knew his ship and you had confidence in his ability.

Yet, we are here investigating an accident in which the ship is suddenly lost and we have to date recovered no -- none of the crew, 29 crewmen. You probably knew many of them personally.

A Yes.

Q What went wrong? Was it judgment? Was it circumstances? What, in your opinion, happened?

A This would be strictly conjecture on my part, but I believe something happened.

Q We know a situation, a flooding, pumps and so forth was going on, but why was the vessel suddenly lost, a
fine vessel, by its reputation that the Fitzgerald had, suddenly getting lost with no one having a chance to get off?
A. Do you want my opinion as to what may have happened and also refute any ideas that somebody else might have had that I may have read?
Q. Well, I want to know your idea. You have been on this ship and you knew Captain McSorley. You have described his character to us. You have described the ship and the Board is asking you, or I am asking you about what your opinion is.
What could have gone wrong? You are a professional seaman.
A. First I will say that I cannot accept the theory that the vessel broke in half. I knew the Fitzgerald. I have been through her bottoms and to me she was a well-constructed ship.
In conjunction with this, picturing the sea, given the weather reports, the fact that we were a weather ship, and in order for that ship to break in half, you would have to have a sea on each end of the ship. You've got 700 feet of ship and I cannot imagine a sea on each end of the ship. You would have to have 700 feet, one crest and another crest, and, well, I have never seen or even heard of anything like that.
You would have more than two seas under that ship at all times, to my knowledge of weather observations. So therefore, I can only say that I think he may have struck a shoal and he didn't realize how much damage may have occurred then and he continued on. The list probably came from water entering his ballast tanks more on one side, and I assume that he would have contacted the engineroom to inquire about the list and they would look at their king gauges and see that the vessel is making water and immediately turn on the pumps to correct the situation, but in a sea that has been described or what I have heard, 25 or 30 feet high, it would be pretty hard to tell whether a ship is going down.

It would probably be a gradual process and, judging from what I have heard in the telephone conversations that he had with various people, she was going along like an old shoe. I assume that he didn't realize that there may have been as much damage as there possibly could have been. Therefore, in my opinion, my opinion is that she either capsized, rolled, or she plunged.

That's all I can say.

Q. Well, Mr. Lange, this is what troubles me possibly, and that is why I wanted your opinion. You have sailed
on the ship. You are a professional seaman. I am sure your definition of a professional seaman is not much different than mine. This would be a person who is aware of the small things that make a difference in safely navigating a vessel.

A. Yes.

Q. How can a condition of flooding progress to the point, this point, without Captain McSorley being aware of it? How could such a thing happen?

A. Well, he would be aware of the listed boat. Evidently, he was according to his phone conversations.

Q. And of the flooding?

A. That is correct.

Q. Would a prudent man have alerted the crew and got them ready for possible difficulty under those circumstances?

A. Not if in his estimation no danger existed. That would be a matter of judgment and I would go along with Captain McSorley's judgment.

Q. Even though all 29 people were lost?

A. That is correct.

Q. During the period that you were on there, do you know of any repairs that were done to the vessel in your '73 and '74 season, Mr. Lange?

A. I don't recall.
Q. You indicated before about the ballast tanks, that you had inspected the bottoms or the ballast tanks. Is that what your testimony indicated?
A. Yes.
Q. When were you last through the ballast tanks on the Fitzgerald?
A. 1973, as well as I can recall.
Q. What was that occasion?
A. That was to observe how much mud had collected on the bottoms and how much of a project it would be to clean the water bottoms out.
Q. How much mud had accumulated in the bottoms?
A. I would say four or five inches of mud.
Q. You couldn't see the bottom through the mud, could you?
A. No.
Q. Could you see the shell plating?
A. You couldn't see the shell plating, no.
Q. How about the lower end of the internals where they connect to the shell plating, could you see those connections?
A. Yes, I did see those.
Q. Through the mud or how?
A. Well, I am giving an average of four or five inches of mud. It wouldn't be -- sometimes it would go down to
one or two inches, probably.

Q. Would you, as Mate, be aware of the repairs that were going on on the Fitzgerald, hull repairs?

A. No, I wouldn't know.

Q. Who would be aware of it?

A. Well, the office would be.

Q. Would the Captain be aware of the repairs?

A. Yes, the Captain would.

Q. Would he be checking on the progress of the repairs to see if it was satisfactorily completed?

A. Well, most of the repairs would be done in the wintertime, when the ship was laid up.

Q. And who would supervise them then?

A. That would be up to the Columbia office, the man that is in charge of that particular thing.

Q. But, during the operating season, if there were any repairs going on, would you know about it?

A. Yes.

Q. Hatch coamings or to the hull?

A. Yes, I would.

Q. Do you know if during '73 or '74 there was any?

A. I don't recall, sir.

Q. Mr. Lange, were you sitting in during the time that Captain Webster was testifying this afternoon?

A. Most of it, yes.
Q. How long have you been sitting in on the proceedings?
A. Two days.
Q. Do you think that listening to the other witnesses' testimony has in any way influenced what your testimony is here today?
A. No.
Q. Would you still make the same statements?
A. I would still make the same statements.

EXAMINATION

By Rear Admiral Barrow:
Q. Mr. Lange, Captain McSorley called another vessel. He called the Anderson sometime after three o'clock, around 3:30 in the afternoon on the 10th of November and told the Captain of the Anderson that he was having problems; that he lost some fence rail and some vents and had a list and had pumps on.

Later, during the next three hours -- well, just take it back just a few more minutes; that he was concerned to the extent that he asked the Anderson to keep an eye on him, to come up and stay with him.

Later in the period, he advised that he had a bad list, which indicates some concern about his condition.

Do you think that a prudent seaman under these conditions would have alerted his crew and would have had
them in lifejackets?

A. If you are not aware of the amount of damage to you, I don't think you would sound any alarms.

Q. Why do you think he asked the Anderson to look after him and actually check his speed down in order that the Anderson might come up close to it? Why do you think he did this?

A. My opinion of that was his radars were out, and he wanted the Anderson to get close enough so he could guide him into Whitefish Bay.

Q. Do you know for a fact that at the time the initial report was made by the Fitzgerald to the Anderson that the radars were out at that time?

A. I thought I heard testimony to that effect, that the radars were out.

Q. At 3:30 in the afternoon?

A. I don't recall what time it was.

Q. Assume that the radars are operational. Why would the Master of the Fitzgerald have asked the Anderson to come up and keep an eye on him and actually slow down?

A. I wouldn't know, other than he wanted company.

Q. He just wanted company. It would not have anything to do with the condition of the ship or anything of this sort? He just wanted company? Is that
your testimony?

A. Yes.

Q. In the ballasted condition for the Fitzgerald, Mr. Lange, can you recall how much ballast water you put in her for the ballast part of the voyage back to the loading point?

A. Yes, I do.

Q. How much did you normally put into her?

A. In Toledo, after we got unloaded, we usually left it 12 feet in the first three and 15 in the next three and 22 feet in the last two tanks.

Q. Was this under all conditions, regardless of weather? This was a standard loading for ballast?

A. It was because they had to keep her down to keep the bow thruster under water.

Q. Did you use this in summer, winter and in all sea conditions?

A. Under weather conditions we could possibly put more than that in there.

Q. Where did you get these amounts from?

A. Well, the Captain was the one that told me the water he wanted.

Q. You had no booklet that you operated from or anything of that sort?

A. In the back of the log book there were patterns,
water patterns drawn that we could refer to.

Q. Are you aware of the existence of a loading manual on the Fitzgerald?

A. I never saw it.

Q. You have never seen it?

A. No.

Q. You never utilized it?

A. No.

Q. Tell me what you know about boat drills, Mr. Lange, the frequency that you carried them out on the Fitzgerald?

A. We had weekly drills, and these drills were so noted in the pilothouse log.

Q. What was your duty in the boat drills?

A. My duty was to prepare the boats for launching. That was both boats. I was responsible for preparing those boats for launching.

Q. Did you carry out any instruction during the drill process? Did you instruct the crews?

A. Well, yes.

Q. What kind of instruction did you give them?

A. That would be the proper putting on of lifejackets and the process of stripping the boat and getting it ready for launching.

Q. I think you have indicated something in your
opinion, that it would take something around 8 or 10
minutes to put a boat in the water from the time you
started stripping it away?
A. Yes.
Q. And I think you indicated that you thought this
could be done as well in port and at sea under the
same conditions?
A. That is correct.
Q. Do you think heavy water would have an impact
on how long it would take to put a boat over?
A. Yes, I would.
Q. Do you think under heavy sea conditions that you
could successfully launch boats such as you had on the
Fitzgerald?
A. Well, we could get them in the water, but I
wouldn't guarantee them after that.
Q. What do you mean by that?
A. Well, if you had such heavy weather, you could
get your boat probably over the side, but then she is
subject to damage from the sea action.
Q. Damage from the sea action?
A. Yes, pounding against the ship's side.
Q. Do you think you could safely get it in the water?
A. I think you could get it in the water.
Q. Did you observe boat drills or carry out boat drills
during the spring fit-out?

A Yes.

Q And put one boat or two boats in the water?

A Normally, the off-dockside boat.

Q And how many people did you exercise in the boats?

A The whole crew.

Q The whole crew?

A Yes.

Q Including yourself?

A I have been out in a lifeboat.

Q And when was the last time you participated in a spring fit-out boat drill?

A To actually go in the boat?

Q Yes, sir.

A I would say about four years ago.

Q Would that have been the last time you were in a boat?

A Yes.

Q Did you carry out the weekly boat drills every week?

A Every week.

Q Regardless of weather or sea conditions?

A In bad weather, we would have what we would call a muster drill, where the crew just assembled up on the boat deck, and that could be in the lee of the cabins so they wouldn't have to go out into the weather.
Q. Did you log this?
A. Yes.
Q. Did you log it yourself, or did the Master log it?
A. The Captain logged it.
Q. If you missed a drill, was that fact ever logged?
A. Well, I don't believe we ever missed one.
Q. Have you ever seen one of these boats in the water out in the lake?
A. No.
Q. During the period of time that you were serving on the Fitzgerald, did you note any damage that occurred on it as far as pier strikings, or striking lock walls or grounding or anything of that sort?
A. Not that I can recall.
Q. You can't recall?
A. No.
Q. You were on, as I recall, the Fitzgerald for approximately two years?
A. Yes.
Q. And I think you testified that you noted during the unloading process that no damage had occurred, and now it is your testimony that to the best of your recollection you can't remember any other damage that occurred from pier striking or striking lock walls or anything of that sort?
A That is correct.

REAR ADMIRAL BARROW: Counsel?

MR. MURPHY: Just one moment.

REAR ADMIRAL BARROW: Off the record momentarily.

(Discussion had off the record.)

REAR ADMIRAL BARROW: Back on the record.

I have one further question.

By Rear Admiral Barrow:

Q Mr. Lange, could you describe to me your understanding of how you launch an inflatable lifeboat and liferaft and get people in it?

A As I recall the instructions, two men throw the raft over the side into the water.

Then the crew from there on would have to jump for the raft.

Q I see. There are actually two people that lift it and throw it over the side.

A That is correct.

Q And how is it inflated?

A By CO₂ charges.

Q Automatically?

A Yes.

Q And then the people get into it by jumping down onto it, is that your testimony?

A That is correct.
Q. Do you think that is a feasible way of getting into an inflatable life raft in a seaway?
A. I don't know how else you could do it.
Q. What would happen? They would hold it onto the side of the ship, using a line of some sort?
A. Yes.
Q. Is this your understanding?
A. That's right.
Q. And they jump down onto the canopy, is that your understanding?
A. That is what I understand.

REAR ADmiral BARROW: Off the record momentarily.

(Discussion off the record.)

REAR ADmiral BARROW: Back on the record.
Counselor?

MR. MURPHY: I have no further questions at this time.

REAR ADmiral BARROW: Any by the Board?

CDR. LOOSMORE: Yes, sir.

EXAMINATION

By Cdr. Loosmore:

Q. Mr. Lange, how long did you sail with Capt. McSorley in all?
A. As I testified before, I was with him for a short period
in 1953, again in 1970 and '71 and '73 and '74.

Q. Yes, sir. Do you think you know him pretty well?
A. Do I think I know him pretty well?
Q. Did you think you knew him pretty well, yes, sir?
A. As a master of a ship; yes.
Q. Did you ever hear him use an expression "going along like an old shoe"?
A. I never heard him say that, no.
Q. Were your duties as first mate -- did your duties as first mate include the relief of the master in case he should become indisposed or otherwise?
A. That is correct.
Q. In that regard, wasn't it important to you as first mate that the master talk to you about problems that the ship was having so that you knew what was going on?
A. Well, he never made me aware that he had any problems, so I couldn't say.
Q. Did you ever discuss the possibility of having to relieve him?
A. No.
Q. Did you ever think about it?
A. Yes.

REAR ADMIRAL BARROW: That's all.
Capt. Wilson? Do you have anything?
CAPT. WILSON: Yes, sir.
EXAMINATION

By Capt. Wilson:

Q. Along that same line, Mr. Lange, did you ever do vacation relief for Capt. McSorley?
A. No.

Q. You mentioned that you had made a few trips with Capt. McSorley in the area between Michipicoten and Caribou.

What charts did he use? Did he use the American charts, the U. S. charts, or the Canadian charts?
A. American charts.

Q. Lake survey charts?
A. Yes.

Q. The full Lake Superior Chart No. 9?
A. That is right.

Q. That's what you navigated with?
A. That's right.

Q. You mentioned tipping the ship with cargo, and primarily with cargo in No. 1 hold to hold the nose down.

When you did that, as best you can recall, did you take any cargo out of the No. 1 hold or did you remove the other cargo and leave it to go down by the head?
A. There was cargo removed from No. 1.

Q. You did take some cargo out of it?
A. Yes, absolutely.
Q. There has also been some testimony, as you mentioned, I believe from accounts and testimony, that the captain, Capt. McSorley, told the Anderson that he had a list.

From your experiences on the Anderson -- from your experiences on the Fitzgerald, how much of a list would be noticeable; what do you think would cause the captain or the mate on watch to notice he had a list, if someone did not happen to look at the gauges or for some other reason, if he just felt it from the ship itself?

A. How much of a list do you think it would be?

Q. I would say three inches or more.

A. You feel that you could notice a three-inch list?

Q. I could, yes.

A. I may have asked this question before, I am not sure, but have you ever been on this vessel with a three-inch list or something to that effect, not necessarily while sailing, but at any time, at the dock or any time?

Q. Not that I can recall.

A. But generally, from other vessels and other ships that you have been on and so on and so forth, you feel that about a three-inch list you could discern?

Q. Yes.

A. That would be noticeable.

Q. On the Fitzgerald, how were the boats girted in?

A. How were the boats held in position, in a stowed position?
A. In the inboard side of the boats was the half saddle
that conformed to the contour of the boat and the boat
was held in by dogs that fit around the gunwale -- not
the gunwale, but the keel of the lifeboat and also a wire
gripe was wrapped around the lifeboat.
Q. Did that gripe go over the top of the boat?
A. That is correct.
Q. I am wondering, taking into consideration that some
of the accounts indicated that there was a boat recovered
and half of the other boat, do you have any feeling or
idea from your own knowledge of the boat and the griping
system and so on and so forth, how the complete boat
could have come loose to get off of the vessel or off of
the ship with the gripes on it?
A. Well, with the tremendous seas, which I have heard
were evident at the time, I believe that it would be possible
for that boat to have been lifted up and the gripes, wires,
broken and the boats float away.
Q. So you believe that the boat would have sufficient
force or buoyancy to break the wire.
How heavy was that wire?
A. Half inch.
Q. Half inch stranded?
A. Yes, six strands.
Q. Six strands.
The last time you were on there, was it in pretty good shape?

A. The wire?
Q. The wire.
A. Yes.
Q. I notice that you are retired now and you retired up north.

When you were sailing, what did you do in the winter when your boats were laid up?
A. I got reacquainted with my family.
Q. So you took the winter off essentially?
A. Yes, sir.
Q. You didn't perform or undertake any other jobs or do anything else or go to Florida as some people do?
A. No.

CAPT. WILSON: That's all.

EXAMINATION

By Capt. Zabinski:

Q. Mr. Lange, do you know Mr. John McCarthy, who was the first mate on the Fitzgerald?
A. I did.
Q. How long did you know him, sir?
A. I first met John in 1941 when I went aboard one of the Oglebay-Norton ships and he was third mate at the time.
Q. Did you consider him a professional seaman?
A. I consider him as a good seaman.

Q. Good. How about the second mate, Mr. Pratt, did you know him?

A. I didn't know him too well. I believe I met him once or twice.

Q. The third mate, Mr. Armogost, did you know him?

A. Yes, I did.

Q. How well did you know him?

A. Mike was on the Steamer Armco when I went over there as first mate. He was wheeling at that time. That was the first I met him and we were together those two years and plus '73 and 1974.

Q. Is he a professional, in your opinion, a professional seaman?

A. Well, he had just gotten his license, so you couldn't categorize him as a professional yet, but I believe he would have made it.

Q. Do you know Mr. Simmons, the wheelsman?

A. Yes, I do.

Q. Did you consider him a professional seaman?

A. Yes.

Q. How about Mr. O'Brien, the wheelsman, did you know him?

A. Yes.

Q. Mr. Poviach, did you know him?
A. I didn't know John too well, except that we had been
shipmates. In fact, he was my wheelsman at one time.
I forget what ship it was, but just for a short period
of time.
Q. Mr. Cundy, did you know him?
A. Yes.
Q. How about the chief engineer, Mr. Holl?
A. Yes, I knew him.
Q. Did you consider him a professional seaman?
A. Yes, very well.
Q. How about Mr. Bindon, the first assistant?
A. Yes.
Q. Did you consider him a professional?
A. I do.
Q. Mr. Edwards, the second mate, did you know him?
A. I knew him, but not as well as I have the other fellows
that you mentioned.
Q. Mr. Haskell?
A. Yes, I know Haskell.
Q. Did you know Mr. Wilhelm, the oiler?
A. Yes.
Q. Mr. Walton?
A. No.
Q. How about Mr. Mazes?
A. Yes.
Mr. MacLellan, the wiper, did you know him?

Yes.

Do you consider all of these people as good professional seamen?

I believe they were good seamen; I couldn't categorize them all into the professional category, but they were all good seamen.

Thank you.

That's all I have.

Counselor?

I have no further questions.

Thank you very much, Mr. Lange.

We have asked you a number of questions here and I will ask you one more, and that is, that if you have not told us, if our questioning here has not elicited all that you know that would provide information which would help us in achieving our purposes in this Board, and anything that you know of the vessel or the people that sailed her or of the equipment on her, that you think might be useful to the Board, I would ask you to tell us now.

I don't know of anything that hasn't been covered.
REAR ADmiral Barrow: I thank you very much. You are excused.

You are cautioned not to discuss your testimony with anyone other than counsel until the conclusion of the investigation.

Thank you, sir.

(Witness excused.)

REAR ADmiral Barrow: Off the record momentarily, please.

(Discussion off the record.)

REAR ADmiral Barrow: We will adjourn at this time and reconvene tomorrow morning at 0930.

Thank you very much.

(At 5:10 p. m. the hearing in the above-entitled matter was adjourned, to reconvene at 9:30 a. m., Friday, December 12, 1975.)

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EXHIBITS

COAST GUARD MARKED

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DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

In the Matter of:
Marine Board of Investigation
Sinking of the SS Edmund Fitzgerald
on Lake Superior 10 November 1975

31st Floor, Auditorium
Federal Office Building
1240 East Ninth Street
Cleveland, Ohio

Friday, December 12, 1975

The above-entitled matter came on for further hearing, pursuant to adjournment, at 9:30 a.m.

BEFORE:
Marine Board of Investigation:

Rear Admiral Winford W. Barrow, Chairman
Capt. Adam S. Zabinski, Member
Capt. James A. Wilson, Member
Cdr. C. S. Loosmore, Recorder
APPEARANCES:

On behalf of The Oglebay-Norton Co.:

Jaeger & Murphy, by
John T. Jaeger
Thomas O. Murphy
Richard C. Binzley
2700 Terminal Tower
Cleveland, Ohio 44113

and

Arter & Hadden, by
Robert C. McCreary, Jr.
1144 Union Commerce Building
Cleveland, Ohio 44115

and

Bradley, Eaton, Jackman & McGovern, by
Warren A. Jackman
135 South LaSalle Street
Chicago, Illinois 60603

On behalf of Cargo Aboard the SS Edmund Fitzgerald:

Ray, Robinson, Keenen & Hanninen, by
Roman T. Keenen
1550 Union Commerce Building
Cleveland, Ohio 44115
APPEARANCES (Continued):

On behalf of seafarers' International Union,
James Pratt and John Poviach:

Ned L. Mann
Victor G. Hanson

On behalf of Marine Engineers Beneficial Association:

Green & Lackey, by
Merritt Green II and
Gerald Lackey
REAR ADmiral Barrow: Let the record show we reconvened at 9:43 a.m.

Counsel for Oglebay-Norton is present.

Cdr. Loosmore, call your next witness.

CDR. LOOSMORE: The Board calls Cdr. Rivard.

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JAMES A. RIVARD, JR.

was called as a witness and, having been first duly sworn, testified as follows:

EXAMINATION

By Cdr. Loosmore:

Q. Would you please state your name, rank, serial number and duty station?

A. Cdr. James A. Rivard, Jr., 532287575, attached to the Office of the Commander, Ninth Coast Guard District.

REAR ADMIRAL BARROW: Cdr. Rivard, the purpose of this Board is to determine as closely as possible the cause of the sinking of the SS Edmund Fitzgerald on 10 November 1975 and to make recommendations flowing out of the fact that we have developed, hopefully to prevent such things from happening in the future.

We, as you know, have nothing in the way of
survivors in this casualty.

We have asked quite a progression of people
about what they knew about the Fitzgerald procedures,
the ship itself, et cetera.

Your purpose is to answer as best you can the
questions put to you concerning your knowledge of
the incident itself.

I will ask you to answer as closely as possible
the questions put to you without elaboration.

Answer as completely, and I am not trying to
put you under restraint, but we do have quite a bit
of testimony to go through. Keep your answers as
short as possible.

We are trying to keep a verbatim record, so
please answer as loudly and as clearly as you can.

Thank you very much.

By Cdr. Loosmore:

Q Cdr. Rivard, what are your duties in your present duty
station?

A I am Chief of the Search and Rescue Branch of the
Ninth Coast Guard District.

In addition to that, the section handles the Ice Informa-
tion Office that is used on the Great Lakes during the
wintertime.

T2LADpz

Q What responsibilities do you have as Chief of the
Search and Rescue Branch?
A. My duties are to act for the District Commander in matters of search and rescue over the entire Great Lakes area.
Q. Would you summarize your qualifications to act in the area of search and rescue?
A. I have been a Search and Rescue aviator for the past 16 years. I spent 18 months at Rescue Coordination Center Control in the Ninth Coast Guard District here in 1964 and 1965.
Q. I was the officer in charge of the National Search and Rescue School at Governor's Island, New York, for a period of three and a half years from 1969.
A. Was the Ninth District Search and Rescue Branch involved in the search for the Edmund Fitzgerald?
Q. Yes, sir; it was my personnel that directed the overall search efforts during the case.
Q. Could you summarize the overall search effort, as you described it?
A. A call was received it and it was at Group Sault Ste. Marie who in turn called the Rescue Coordination Center at 2040 Romeo Time. We all use local time, which is Romeo Time.

CAPT. ZABINSKI: What time zone is Romeo?

Is it Central or Eastern?

CAPT. ZABINSKI: Thank you.

THE WITNESS: And information was passed to the Search and Rescue Controller, Lt. J. J. Mumford, that the Steamer Anderson had lost contact with the Steamer Fitzgerald.

There was another communication with the group by RCC at 2110 where more information was passed and then at 2115, the Rescue Coordination Center directed Traverse City to dispatch the aircraft.

At 2117, the Rescue Coordination Center in Trenton was alerted to the situation.

At 2125, the Naugatuck was directed to proceed to the scene, and at 2130, the Coast Guard Cutter Woodrush was directed to recall their crew and proceed to the scene.

The Coast Guard Cutter Naugatuck had been in a Bravo 2 status previously coming out of Charlie and they had some problems, mechanical problems, in getting under way that night.

The Woodrush left about midnight that night, but due to the conditions involved, it would take them approximately 24 hours to get to the scene.

Coast Guard Air Station Traverse City launched
an HU-16 at 2206, followed closely with an HH-52 helicopter at 2223, and a second HH-52 helicopter at 2249.

At 2:53 the HU-16 arrived on scene and at 12:40, and I am backtracking a little bit, the Rescue Coordination Center at Trenton sent a C-130. However, that aircraft had some mechanical problems and was later delayed approximately three hours.

By Cdr. Loosmore:

Q. Where did the C-130 come from?

A. Trenton, Ontario. I believe it was out on another case. It was working a Canadian case and it was diverted to Lake Superior, but then it had mechanical problems.

There was a delay in getting another C-130 out there. The search was conducted throughout the night with an HU-16 which dropped flares for the Steamer Fitzgerald search. There were also several other lakers and some merchant vessels in the area searching.

The Naugatuck, in trying to get under way, they had trouble with an oil line that broke.

They got it fixed and then they tried to get under way again, and the part failed. So they had to get someone from Sault Ste. Marie Industrial, and that is a Coast Guard facility, to repair the line.

I must say that the Coast Guard Cutter Naugatuck
had been in a Charlie status, which means that they
were not required to be able to get under way.

However, due to the high wind conditions, the
vessel had been put in a Bravo 2 status, although they
were not given sufficient amount of time to come out of
a Charlie status, which normally would have been done,
if there was not a necessity for it to assume a Bravo 2
status in such a short period of time.

The Naugatuck ultimately got under way approximately
at 0900 the next day and got on the scene at approxi-
mately noon.

The Coast Guard Cutter Woodrush got under way at
midnight, and it arrived on scene at midnight the next
night.

There was an area assigned around the last known posi-
tion of the Fitzgerald for the HU-16 and the helicopters
to search.

The HU-16 dropped approximately four flares; one
of them not firing. This is a normal occurrence because
a certain percentage of flares will not work.

The Steamer Anderson searching underneath indicated
the flares were not very effective.

You have to have a freeboard or something sticking up
out of the water at a considerable distance casting a
shadow, but the seas were casting so many shadows and such
large shadows that it made searching by flares ineffective.

A search for the daylight hours was planned during
the night, utilizing a C-130 from the Air Force Inter-
national Guard, a Canadian C-130, the Coast Guard HU-16
and two helicopters from Traverse City and a Coast Guard
C-130 from Elizabeth City.

During the time after midnight, it was arranged
to have a C-130 to come from Elizabeth City and it was
arranged for them to be on the scene before daylight.

They directed the search efforts during the next day.
They searched throughout that day, and then -- that
was the 11th. Then a search was planned on the 12th,
utilizing the Coast Guard C-130 and the International
Guard C-130, the HU-16 from Traverse City and the Canadian
C-130 also participated.

Search efforts were hampered on the 12th due to
low ceilings which delayed the launching of the aircraft.
The helicopters were able to proceed first a low alti-
tude and then some time in the afternoon the ceiling
picked up, so that the HU-16's could search.

On the 13th, similar searches were planned. In
addition -- right now I am going into the aircraft
searches and I will get into the vessel searches later on,
but on the 13th, similar searches for those aircraft
were also planned.
The Coast Guard Cutter Naugatuck got under way, as I stated before, and arrived at approximately noon on the 11th and the Naugatuck was doing a track light search initially, and subsequently on the 11th, 12th, 13th, they were assigned area searches.

The Woodrush got on the scene at approximately 2400 on the 11th and was assigned area searches through the 13th.

The on-scene conditions, due to generally high winds, heavy seas, caused probability of detection to be extremely low. We were recording anything from a three per cent to a 10 per cent probability of detection for persons in the water.

On the 11th, we found parts of a life raft -- pardon me, a lifeboat, and a couple of life rafts.

Through the serial numbers of these life rafts, we were able to identify them as coming from the Steamer Fitzgerald. In addition, a lifeboat was found, so we found two lifeboats, one broken, and two life rafts, and I understood that these were the only lifeboats or life rafts that the Steamer Fitzgerald carried.

So then the search object for the most part during the search were for bodies or other debris, and the probability of detection for personnel not in a lifeboat or a life raft is extremely low, due to the water
temperature, which I believe was about 51 degrees Fahrenheit, and the fact that we had many, many searches by aircraft and vessels over the area, the search effort was concluded at approximately 2200 on the 13th. In addition, the Canadian Coast Guard Vessel Verendrye searched. The Verendrye, the Canadian Coast Guard vessel, assisted in the search on the 12th and the 13th.

By Cdr. Loosmore:

Q. What time did you say the first call was received by the Coast Guard?
A. The first call was received by the Rescue Coordination Center. I stated it was 2040.

Q. Do you have a record to indicate what time the Coast Guard was notified, any unit of the Coast Guard?

CAPT. ZABINSKI: I am sorry. What time was that?

THE WITNESS: At 2025 Romeo on the 10th.

Q. What role did the Rescue Coordination Center in the Ninth Coast Guard District play in the search?
A. We were coordinating the search effort.

We were designating search areas, assigning aircraft
and vessels to the search areas.

Q. Did the assigning of the vessels include the assign-
ing of commercial vessels?

A. I understand that the Group Sault Ste. Marie
asked commercial vessels to assist in that search.
Initially there were approximately four that were out
there, and various vessels had been passed as they were
passing through the area then to assist during the hours
in darkness on the 10th and the 11th.

There were merchant and lake vessels assisting in
the search.

Q. Do you have any information on what was recovered
as a result of this search? I mean, in addition to
the lifeboats and life rafts, do you have any idea or
can you tell us?

A. The objects that were recovered were two life
rafts, two lifeboats, approximately nine life rings,
14 cork life jackets, an inflatable deck for a raft, a
sounding board, a wooden ladder section, a sword, a
strong back section, an aluminum tank, a chair stool,
a propane cylinder, a lifeboat air tank, six to eight
feet of line, bumper block with line, several planks and
timbers, other wood.

Q. Approximately how much of an area of Lake Superior
was searched in connection with the search over the
A. The search was approximately 10 miles to the west, the western end of the search area, which was approximately 10 to 15 miles west of Crisp Point. That extended to approximately 20 miles to the north of the last known position of the Fitzgerald, which would put it about 30 to 35 miles north of Crisp Point, and then the eastern boundary was the shore line, the Canadian shore line, and the southern boundary was the shore line of Michigan.

Q. In view of the fact that this area was apparently covered several times, and if debris you mention was recovered, do you have an overall estimate of the probability of detecting or of finding a person in the water? Is it possible to make such an estimate?

A. The estimate on that, it would be hardly detectable, because of the extreme low probabilities of detection for a person in the water.

Q. What activities were conducted after the active search was concluded?

A. The Navy was asked to provide a P3 aircraft to conduct a search of the area for possibly locating where the Fitzgerald might rest.

They did this search on the 14th and they located an object, and then on the next Saturday, I think the
Saturday of the 16th, the P3 went out again with the
Woodrush, so that they covered the area.

In addition to that, the Coast Guard Air Station
Traverse City was directed on, I believe the 14th, it
might have been the 15th, to conduct daily flights over
the area, which they did for approximately one week.

Now Traverse City is conducting weekly flights
over the area.

One of the search objects was any oil that might be
coming up. They were also on the lookout for personnel
and debris.

We have asked the Canadians during the normal
operation to report any sightings that they might find
in the area. Group Sault Ste. Marie's vessels and
personnel have been directed to, when they were transiti-
ting the area during the normal operation, to report
any objects or bodies that they might find.

Yesterday we had an H-52 helicopter searching the
shoreline from 10 miles west of Crisp Point around
Whitefish Bay and then north to the Montreal River.
The search conditions were pretty good on the Michigan
shoreline, but on the Canadian shoreline, due to ice,
the probability of detection was low.

Q. Were there any other Canadian efforts involved
with the search that you haven't mentioned that you are
Aware of?

A. Well, the Ontario Provincial Police conducted numerous shore line searches during the active search dates.

Q. Would you have been informed of the results of those searches, as the coordinator?

A. Yes, we have been kept informed. In fact, many objects that have been located were located by the Ontario Provincial Police in Canada.

Q. You mentioned that the Naugatuck was changed in status from Charlie to Bravo 2, the terms of which have been previously explained here, but you said something -- you were not given the time normally allowed.

What time was normally allowed?

A. Well, when a vessel is in Charlie status, we have a schedule that is posted quarterly that assigns them Charlie status or the various readiness status that we call Bravo status. The Bravo status has a number after that that indicates how many hours you are expected to proceed after getting the word to proceed, and this schedule gives them their Charlie time so that they have usually a week in order to know when they are expected to report back in a ready status, and therefore they can do all of the checks necessary to insure that they are ready to go.
When you take a vessel from Charlie status and put it in a Bravo status on very short notice, they just cannot do everything necessary that they normally can do when going from a maintenance or Charlie status in a ready status.

Q. You said that there had been many, many searches by aircraft and vessel.

Do you have an estimate of the number of sorties or the number of searches that were conducted overall?

A. There were an average of three fixed wing aircraft and two helicopters searching on the 11th, 12th and 13th.

We would have different crews and the helicopters, the one crew would search for five or six hours, and then the other crew would get in the same helicopter. We would have to refuel because the helicopters can only stay up approximately three to four hours.

So that we would have many sorties, but I think the best answer to that question is that there was approximately three fixed wing aircrafts and two helicopters on scene during the daylight hours on the searches of the 11th, 12th and 13th.

Q. Do you have a record or can you estimate how many Coast Guard vessels were involved in the search?

A. That brings to mind also that on the 11th, a Coast Guard 40 footer from Sault Ste. Marie did go out
on the scene so that the Coast Guard vessels were
the Coast Guard Vessel Woodrush, the Coast Guard Cutter
Naugatuck, and a 40 footer from Sault Ste. Marie.
Q. You said that the 40 footer went out on the 11th.
Did it also search on the 12th and 13th, as far
as you know?
A. No, it did not.
Q. But the Woodrush and Naugatuck did?
A. Yes.
Q. Do you have an estimate of the number of commercial
vessels which were contacted to assist in this search?
A. Initially there were approximately four vessels that
were searching during the hours of darkness on the early
morning hours on the 11th.
Many vessels transiting the area had also assisted.
I cannot estimate that number.

CDR. LOOSMORE: That is all I have.
REAR ADMIRAL BARROW: Capt. Wilson?
CAPT. WILSON: No, sir; I have
no questions.
REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION
By Capt. Zabinski:
Q. Do you have any indication of what the weather on
scene was when you dispatched the first forces out there,
Cdr. Rivard?

A. The weather report that I had received is that we had had winds up to 80 miles per hour on scene at Sault Ste. Marie.

I was told we had seas of approximately 25 feet.

Then later, after the initial launch, the wind estimates came down to 40 to 45 knots from the west, and the estimates on the seas dropped to approximately 16 feet.

Q. Where did you get this first weather report?

A. The first weather we received from Group Sault Ste. Marie, which had indicated that their wind instruments had shown that they had winds in excess of 70 miles an hour, and they were also receiving reports from vessels on scene.

Q. Now we have the rescue coordination here in Cleveland; is that correct?

A. Yes.

Q. It is in Cleveland?

A. Yes, sir.

Q. And did you have any radio communications with the vessels on the scene, or what are your capabilities in that regard?

A. We have the capability of phone patches. That is with the vessels on the scene.
However, normally we direct them to teletype traffic that is transmitted to the vessel.

Q And who would transmit it to the vessel? What is the mode of travel?
A That would be the communications center at the Ninth Coast Guard District Office here in the building.

Also, during the search, we direct Sault Ste. Marie to pass the information, and Sault Ste. Marie would use FM communications to pass the information to the vessel on scene also.

Q Is it normal for our RCC here in Cleveland during this case to talk to the individual vessels on scene or would that be an unusual situation?
A It is an unusual situation if there is immediate directions that need to be passed to the vessel, that is in addition to the search plan.

For instance, if they would locate a person, then they would try to get medical assistance to that person or have a quick change in the search plan.

Now, during the search we have had to adjust search areas of the various aircraft because of bad weather.

In this case, we would call by telephone to Traverse City and Traverse City would relay that information by radio to our craft on the scene. This was done quite often, but with respect to phone patches or the RCC
directly talking to the vessels, I don't think that was
done in this case.
Q. And the modification for the change in weather
conditions that you received after the units were on
scene as being 40 miles an hour winds and 16 foot seas,
where did that come from?
A. Right offhand I cannot say.
I believe we were getting Weather Bureau reports
at that time.
Q. What debris or equipment was recovered by the Coast
Guard vessels that you know of?
A. The Coast Guard vessels, as I recall, when the
Woodrush arrived on scene, she found a life ring, and
there were life rings and life jackets that were re-
covered by the Coast Guard.
Q. Would you have the names of the commercial vessels
which assisted during the night of the tragedy?
A. Yes, sir.
Q. Could you read them into the record, please?
A. The message I have indicates the vessels: The
Nanfri, the Benfri, the Avafors, and the Arthur M.
Anderson, and I don't have a record with me now, but I
believe the William Clay Ford was also searching in
the area.
Q. Who directed these vessels to participate in the
search or how was that handled?

A. Group Sault Ste. Marie was asking the vessels to assist.

Q. Was that coordinated through RCC or how was that handled?

A. Group Sault Ste. Marie was directing or asking, pardon me, the vessels to assist in the search, and Group Soo was informing RCC of their participation.

Q. That's normal procedure?

A. Well, in addition to that, a safety broadcast was made, approximately 2200, which indicated that the Steamer Fitzgerald could not be found and requested all vessels transiting the area to assist.

This is normally done by the Rescue Coordination Center. However, the direct contact with the vessels usually is handled by the unit that is closest to the scene.

Q. Do you have a report that -- if I understand what occurred, you had a report that the Fitzgerald at first was in a missing status; is that correct?

A. Yes, sir.

Q. How long did that phase last?

A. That phase lasted in the Rescue Coordination Center approximately 25 to 30 minutes, when further communication was received from Group Soo that there was further
I must say at that time, in the Rescue Coordination Center, that they were also working on a case involving four people that were swept off of a seawall in Grand Haven, Michigan, and they had been in the water, and we had had a vessel, an aircraft, attempt to locate those people also.

Conditions over the major portion of the Great Lakes, Lake Superior, Lake Michigan, Lake Huron and also Lake Erie, throughout the day caused numerous cases that had developed because of the high winds.

Q. Is it your testimony that the SAR case involving these four people diverted some forces that would have been deployed for the Fitzgerald; is that your testimony?

A. No. At approximately 2100 the Rescue Coordination Center was involved in a rescue in Lake Michigan. However, the forces there were too far away to be used.

Q. And this storm created other SAR incidents that you had to handle in RCC. Is that a fair statement?

A. Yes, sir.

Q. How many in all did you handle that night? How many cases did you handle that night, if you know?

A. We had a case also going that night of two men from Michigan that had gone to check their fish nets around Tahquamenon Island and they were overdue that night.
I think they were out in a small boat approximately 16 feet, so that we wanted to conduct a search for them, but conditions precluded the search until the next day. They were found on Tahquamenon Island where they had ridden out the storm, but we had attempted to send a boat out on that case, but we were unable to until the next morning.

Then Grand Haven, Michigan, that case was going on also.

Q. Do you have any other cases that were going on that RCC was handling?

A. Not at that time. There had been many previous to that time.

Q. Because of the same storm?

A. Because of the same weather pattern over the entire Great Lakes.

Q. You indicated that the 40 footer from the Soo went out on the 11th but did not participate on the 12th or 13th.

Why not?

A. Because of the number of aircraft and the vessels that we had on scene and the fact that it would have been conducted at the extreme limit of their search effectiveness.

It was a small boat searching out in the lake,
which we needed to avoid.

Q. How far -- well, let me ask you this:

Did you have a datum or a marker or position which

you suspected?

A. Yes. We had the last known position of the Fitzgerald

that was transmitted to us by the Steamer Anderson.

Q. What was that?

A. This was used as our data.

Q. What position was that?

A. Approximately 4659 north and 8507.7 west.

Q. I'm sorry; what was the longitudinal coordinate?

A. 8507.7.

Q. And you testified this was at what time?

A. That position was given to Group Sault Ste. Marie at

2025.

Q. Did you receive that in your first communication

from the Soo about the reported missing --

A. I believe that this is a refined position.

The first position was very approximate.

As I recall, it was 15 miles north of Crisp Point.

Q. So this latitude and longitude you gave us was a

refined position, but the first position that anyone re-

ceived was what, again?

A. It was 15 miles north of Crisp Point.

Q. Due north or was it --
A. I can't say that it was due north, but it was interpreted by the RCC as being due north.

Q. So the first indication of the Fitzgerald's last position was 15 miles due north of Crisp Point, and then at some subsequent time it was refined to this exact latitude and longitude; is that correct?

A. Yes, sir.

Q. Do you know when that time was that you received the first indication of the exact location?

A. I can't say right now when. I am sure I could find that.

Q. Could you estimate; was it in an hour or two hours or what?

A. I would estimate that by midnight that we had that refined position.

Q. And who would have provided that position?

A. The Steamer Anderson.

Q. How far is it from the scene to Group Soo where the 40 footer was stationed?

A. Approximately 40 miles and, of course, with respect to the 40 footer operating 40 miles from their normal base, that would have caused problems.

Operating offshore like that, you would have to provide relief for the crews and such operating so far from their normal operating base, which would have
caused difficulties.

That was another reason why the 40 footer was not used subsequently.

Q. Was the 40 footer designed for open lake operations?
A. No, sir.

Q. It is a harbor type of craft, is it?
A. Generally protected waters.

Q. And in that area out there, would you class them as protected waters?
A. That was unprotected waters.

Q. The Naugatuck, what type of vessel is that, the size and so forth?
A. It is a 110 foot harbor tug.

Q. Is she designed or used for other than protected waters?
A. Yes. Our policy is to use the harbor tugs in conditions where we cannot use our 40 footers and 30 footers.

There is a restriction on the use of the wide TM published by the commandant, limitation of 60 knot winds and also when you have heavy seas, due to some instability characteristics. You should be concerned about their use.

Q. With the weather conditions that existed, were they in excess of these safe operating parameters that you just indicated?
As was developed shortly after the initial launch of forces, when the winds were reported to be 40 to 45 knots, this does not exceed the restrictions.

However, with the 16 foot seas that were reported during the night, these were considered excessive by the operational commander of that vessel, who is the Group Commander of Sault Ste. Marie. He recommended against the use of the Naugatuck during the night hours there when they had those sea conditions.

However, the commandant's instruction does not give a particular sea state that they not be used.

Q. Could you give us any idea when the wind and sea state reached a degree where the Naugatuck could be sent out?

A. We can send the Naugatuck out when the winds are below 60 knots.

However, with respect to seas, certainly at 16 feet the sea would lead experienced seamen to doubt whether they would have any capability. But in some cases we would have less seas than that and you would direct them to proceed, and they could evaluate more properly by starting to proceed, and if they found that they were overextending their capabilities, then they would return.
Q. Well, when the Naugatuck did start out after having her difficulties resolved, was she able to proceed to the scene without difficulty, to your knowledge?
A. Yes. The next day the seas went to seven feet before noon.
Q. Would it be a fair statement to say that the Naugatuck could have proceeded some time earlier than what she did in safety, as far as weather was concerned?
A. I believe so, yes.
Q. You indicated that, I guess, the first aircraft, some of the first aircraft on scene were C-130's?
A. Yes.
Q. These are quite large aircraft, are they?
A. Yes, sir. They have a wing span of about 132 feet. They are four-engined aircraft.
Q. How effective are they in a search of this type?
A. Their search speed varies from about 150 to 190 knots, and at that speed, it is extremely difficult to search for a person in the water.

The lower you can go, the better probability of detection that you would have.
Q. How long can they get operating in a SAR case of this type under the conditions that existed? What altitude could they fly at?
A. A normal, safe altitude would be approximately 500
feet.

However, it varies from station to station as far as what is actually allowed.

Pilots have their own capabilities also, and where some might search lower than others, they are at different experience levels, and therefore it really varies on what the lowest altitude would be.

Q In comparison with the helos that went out, which would be the more effective in locating, let's say, a lifeboat or life raft?
A A helicopter would be much more effective in locating a person in the water. With respect to a larger object like a lifeboat or life raft, we have tables that should equalize the search efforts of those units, but when it comes to a person in the water, this is where a helicopter is much more effective.

Q Would the C-130 have been as effective as the helicopter in, say, finding a 25-man inflatable life raft or lifeboat under the conditions that existed?
A We do not have any tables or information where we can tell how much more effective it is to search at a lower speed than it is at a faster speed.

However, it is always better to search at a slower speed than a faster speed.

I would have to say that even for a life raft and a
lifeboat that the helicopter would be more effective.

However, then you get into the size of the search area and the time that you have to search the area.

The faster aircraft can search the area in much less time, but generally the slower aircraft would be more effective with respect to the search.

Q Would you consider this as a large search area or how would you categorize it?

A That was relatively a small search area for a case of this type.

Generally, when we are looking for a vessel that is missing, we have a much larger area than we have now or had in this case.

Q Do you know if the C-130's reported sighting any lifeboats or life rafts?

A Yes; the C-130, I believe, reported some debris that was located approximately seven miles downwind, which is approximately to the east of the last reported position of the Fitzgerald.

Q So they did report seeing something. Was that daylight or was it still darkness at that time?

A Let me check.

Q All right, would you?

(Pause.)

A A C-130, the Air Force C-130, when en route to search
his assigned search area, sighted an overturned boat.
This boat was broken loose from the moorings. It had no
effect on the case.
Q    This was on another boat?
A    This Air Force C-130 spotted an aluminum boat
    that had no bearing on the case. I would have to check.
I did know that I saw something in here that indicated
that a C-130 had spotted something, but it was the
Air Force C-130, so I would have to refer to my case
file in order to find that information, which I don't
have now.
Q    Is it your impression now that the C-130's did
    sight and did report sightings of some wreckage from
    the Fitzgerald?
A    Some wreckage from the Fitzgerald was reported during
    the early morning, say approximately 0400 to 0900,
    but I can't recall right offhand which unit spotted it,
    and that debris was located downwind from the last
    known position of the vessel.
Q    How long did this 40 mile an hour winds exist on
    the scene?
A    Those winds started to -- well, from what I recall
    after the units got on scene, the aircraft, the wind
    did start to abate.
Q    I want to ask you about -- first of all, would there
be any difficulty in a C-130 operating in winds, let's say, between 40 and 80 miles per hour?

A. No difficulty with respect to the safety of the aircraft. However, gusty conditions and winds of that nature generally have gusty conditions that causes bouncing of the aircraft and reduces the effectiveness of the crew.

Q. How about helos? Let's talk about this HU-16 first. What is the effectiveness of an HU-16 operating in winds between 40 and 80 miles per hour?

A. Again, it doesn't normally affect the safety of the aircraft, but it does cause the crew to have some difficulties.

Q. Let's go into the helos themselves operating in winds between 40 and 80 miles per hour.

A. The wind does not affect the safety of the aircraft, except that they are trying to go some place in a high wind like that. It just takes them a lot longer to get there and they might have to refuel several times, where it wouldn't have to if there was a no-wind condition.

The helicopter bounces around quite a bit, but it is always going at a lesser speed, so it would depend primarily on the gustiness on whether it would hamper or the degree to which it would hamper their operations.
Q. Was there any loss of aircraft or Coast Guard aircraft or vessel as a result of this SAR search?
A. No, sir.
Q. Was there any damage to any Coast Guard aircraft or vessels that participated in this search, if you know?
A. I can't recall any, sir.
I would like to qualify one of my statements with respect to the operation of the helo under those conditions.
Q. What conditions?
A. Well, if everything goes right in a helicopter, then they can fly on a 40 knot or 80 knot wind, unless it gets extremely gusty, and then it provides some problems, but it is a single-engine aircraft, a single-engine aircraft over water.
When you have a high sea state, that can produce a safety problem. If that engine should fail, then, you will find that the helicopter is then the object of the search also.
So that flying a single-engine aircraft over water is not always the best practice and with respect to the helicopter, when you have adverse sea conditions, this would compound the problem.
Q. Were these single or multi-engine helicopters?
A. They were single-engine helicopters.

Q. Do we have any multi-engine helicopters in the area?

A. Not in the Great Lakes area.

Q. I would like to cover Lake Superior. It is a big place, and you indicated that you had sent the Woodrush or dispatched the Woodrush, which took some 24 hours to get to the scene.

She was located at Duluth, is that correct?

A. That is correct, sir.

Q. What other forces did the Coast Guard, and I am talking now about surface vessels, does the Coast Guard have in Lake Superior that are stationed?

A. Well, you have a 30 foot, 36 foot motor lifeboat that is stationed at Grand Marais, approximately, I think it was, 35 to 40 miles from the first reported position of the Fitzgerald, and then at Marquette, Michigan --

Q. Was that vessel used; was that 36 footer used in the search?

A. No, it was not. The speed is less than nine knots and in that sea condition, the crew would be bouncing around quite a bit. It would have taken then a considerably long time to get on scene and by the time they got on scene, their effectiveness would be nil, and that was a long distance during those conditions for a small
boat.

Although a motor lifeboat is an extremely capable boat and it is very seaworthy, it was still too long a distance, we believe, to have been used.

We also, at Marquette, Michigan, have a 40 footer.

Q Marquette? Go ahead.

A We have a 40 footer there and then we have a Bayfield SAR detachment in the island area approximately 60 miles east of Duluth and there is a small boat there.

Q When you say small boat, what size?

A 40 footer, and then the Woodrush was in Duluth.

We have SAR boats in the Duluth area also, but that's 250 miles away.

Q What size vessel or boat would they be?

A I don't know exactly how much they have. I would say probably a 40 and a 30, perhaps a 44, but I don't think they have a 44.

Q What else do we have in Lake Superior? What do they have on Lake Superior?

A In Lake Superior, these were the only stations that we have boats.

Q Let's go on down, and what are the next forces that could have been dispatched? I guess they would have had to come through the Soo?

A That's right. Sault Ste. Marie has a 40 footer,
which they could have used. In addition, they have a 17 and a 21 footer.

That would be something that would not even be considered to be used out there.

The next station is St. Ignace and they have a 44 footer and a 40 footer.

Q. Were they dispatched?
A. They were not dispatched.

Q. How far are they from the scene; how far is St. Ignace from the scene?
A. At least 80 miles. I think it is a little further from that.

Q. Could you go on?
A. At Sheboygan, Michigan, we have the Coast Guard Cutter Mackinac which was in a Charlie status, because she was getting prepared for the winter ice operations. She had one of her engines dismantled and suspended in the engine room and could not be dispatched.

Then the next one is the Sundew that was in Charlie status, normal maintenance status, and the Coast Guard Cutter Mesquite, out of Sturgeon Bay, but she was not in her home port; she was off Milwaukee on a mission.

Q. How far was that?
A. Approximately 210 miles from the scene.

Q. Was she dispatched or not?
A. Pardon me. Her home port is 210 miles. Milwaukee would have added considerable more distance, something between 60 and 100 miles.

Q. As I say, was she dispatched?

A. No.

Q. Why not?

A. We felt at that time it would just take her too long to get to the scene.

And we have the Coast Guard Cutter Bramble that was in Port Huron. That was approximately 250 miles from the scene.

Q. What was the Bramble's status?

A. On a Bravo 6.

Q. Was she dispatched?

A. No.

Q. Why not?

A. It was felt she was too far from the scene.

In addition to the speed over that 250 miles, you have the passage through the locks of the Soo that would have slowed her up considerably.

Q. The speed of the Bramble?

A. The speed of the Bramble was approximately 15 knots.

However, in the sea conditions that existed in northern Lake Michigan and Lake Huron and also Lake Superior, I would say that the maximum speed would have
been 10 knots.

When we are talking about 250 miles, it would be about 33 hours to get on the scene.

Q You felt that your rescue effort or the SAR would have been well progressed by that time? Was any thought given to that?

A With the number of aircraft that we had in a small area, we would have been able to locate a lifeboat or a life raft with survivors aboard well before, and this is opinion, well before the Bramble would have arrived on scene.

If personnel were in the water, then their survival capability in those 33 hours were just about nil.

Q How long do you think the people could have survived in water temperature of 51 degrees?

A Approximately six hours.

We have a chart that indicates six hours. However, we did not call off a search when that six hours goes by, but this is used as a guide to tell us how we have to concentrate our forces in order to find that person prior to them expiring in that six-hour period.

Q We had a witness before the Board, quite a healthy individual, and we asked him his opinion. He indicated he would have lasted probably not more than two minutes.

Do you think a person could have lasted six hours
out there?

A. Well, we had a case in Lake Michigan where we had
57 degree water, and a man survived for 25 hours hanging
onto a boat; so that this six hours is a guide to tell
us how much we have to concentrate.

It does not tell us when to call off our search.

Q. From what you indicate, the helicopters on scene
would have had the capability of immediate rescue of
people in lifeboats, life rafts or in the water itself;
is that correct?

A. Yes, sir.

Q. What do you have for aircraft in the area that
could have been used?

A. I have Traverse City which has assigned at the present
time two HU-16 fixed wing aircraft, and they have two
HH-52 helicopters; a Coast Guard Air Station, Chicago,
which has three HH-52 helicopters, and they are located
at least 250 miles from the scene, perhaps closer to 300.

The Coast Guard Air Station in Detroit, Michigan
has three helicopters, and I would say they are about
300 miles from the scene.

We had the next day made arrangements for a crew
from these two air stations, Detroit and Chicago,
sub-crews to be transported up there.

However, the air station at Traverse City indicated
that they did not need the extra crews for their helicopters.

Q. Are there any operating restrictions on the helicopter operating alone, or what is the procedure?

A. Over water at night in the search of an area, we require a boat to be on scene.

They may transit areas point to point with navigation aids without the escort of a fixed wing aircraft.

However, if we are going out in a marine situation, if we were going offshore 60 miles to rendezvous with a boat, as opposed to making a landfall, we would require the escort of a helicopter with the escort of a fixed wing aircraft, any time they proceed more than 25 miles offshore.

Q. The area of the Fitzgerald was not more than 25 miles offshore?

A. That is correct, but if we were just going to have one helicopter searching there, we would require a boat to be on scene during the darkness hours.

Q. Was there such a boat on scene? Was there a boat on scene?

A. There were merchant vessels on scene, which could have been used to assist the single-engine helicopters if anything went wrong.

We want to be able to have a vessel in there that could see the helicopter when he got in trouble and
could get over to the helicopter and assist the crew if anything should happen.

CAPT. ZABINSKI: That's all I have.

EXAMINATION

By Rear Admiral Barrow:

Q Commander, your initial search for the Fitzgerald, was it a concentrated search? You have indicated an area, I believe, that stretched some distance to the northeast and west.

Was your initial search a concentrated one?

A The initial search was very concentrated around the position that the Steamer Anderson indicated that the Fitzgerald was at, and that was at the latitude and longitude of 4659 north and 8507.7 west.

The area took in that position, but it also went toward the west, because of the drift that would have been caused by the wind. Partly it went toward the east.

Q But the initial aircraft that was on scene went directly to this position and what kind of search did it carry?

A It was doing a flare search with the Steamer Anderson. He was dropping flares so that the Steamer Anderson could see or attempt to see any survivors or lifeboats or such.

Then at 0221 a search area, Alpha 1, was given,
and this area was bounded by 4650 north, 4701 north.

Those are boundary latitudes, and the boundary
longitudes were 8450 west and 8510 west.

The U-16 was on scene with the commander, and he
had at his disposal the helicopters to assist in the
search.

Q. Your initial search object was what, Commander?
A. The initial search object was, one of them was the
Fitzgerald itself, because we weren't positive that the
Fitzgerald was lost at that time.

In addition, the search object was lifeboats, life
rafts or personnel in the water.

Q. When did you actually shift your search effort from
people in the water as opposed to the ship itself?
Can you tell me that?
A. I don't think at any time we really shifted from
one to the other.

After 2110 there was great concern for the Fitz-
gerald.

Q. And what time was that now?
A. That was approximately 2200, sir.

Q. You have indicated and we have some testimony, of
course, that other ore boats in the area and saltwater
vessels were pressed into service to assist in the search
effort here. Is that a customary thing on the lakes?
A. Yes, sir. We do give out a safety broadcast when we have overdue vessels or vessels in distress, asking other aircraft to assist, and this happens normally in large-scale operations such as this case.

We would also individually enlist the aid of non-Coast Guard sources.

Q. Would the Coast Guard experience in this respect have been good as far as getting assistance?

A. People are extremely cooperative in distress instances, to respond.

Q. What is the Mackinac?

A. The Mackinac is an icebreaker, but I can't recall exactly -- 280 or 290 feet long.

Q. What is her customary work schedule?

A. Her normal work schedule runs from approximately the 15th of December until the middle of April some time, in icebreaking operations, and this varies with the amount of ice. Some seasons they start out early.

The rest of her schedule is relatively light.

It is an icebreaker with the primary job of breaking ice. She is used during the winter months.

Q. How late in the year does she operate generally? On into the spring, generally?

A. Last year she operated throughout the ice season.

I did not have any closed operations during the ice season.
Q. In what lakes does she operate from?
A. Generally the Straits of Mackinac, St. Mary's River, Whitefish Bay and Lake Superior areas.
Q. You have mentioned four other vessels here: the Mesquite, Sundew, the Woodrush, and the Bramble. What kind of vessels are they?
A. The Mesquite is a 180 foot buoy tender, used for aid-to-navigation work, and on occasion for search and rescue.

The Bramble is a 180 foot buoy tender with the same mission or responsibility.

Likewise, the Woodrush is a 180 foot buoy tender.

The Sundew is a 180 foot buoy tender and I believe that was the ones you asked.
Q. What governs the assignment of the vessels in the various lakes of these particular four?
A. Well, the operation plan of the Ninth District indicates the home port of these vessels. In addition, their readiness status is governed by the District Commander Instruction 3120.3F, dated 19 November 1974.
Q. The question I asked was what governs the assignment? Why was the Woodrush in Duluth in this particular location and the other various locations that you have?
A. Their assigned home ports are based upon their accepted utilization, such as the buoy tenders -- well,
I was not here, however, when the positions of those
buoy tenders were established; so that I cannot say all
of the exact reasons why a particular buoy tender is in
a certain location.

However, I am sure that Search and Rescue as well
as their aids-to-navigation mission dictate where the
vessel should be and in addition to that, where they
have ports that are capable of having them is another
consideration. But I was not here when it was determined
that those vessels should be in their respective home
ports.

REAR ADMIRAL BARRON: Mr. Murphy, do
you have a question?

Maybe we can take a five-minute recess.
(Recess had.)

REAR ADMIRAL BARRON: Let the record show
we reconvene at 11:27. Counsel for Oglebay-Norton
present. Proceed.

MR. MURPHY: Thank you, Mr. Chairman.

EXAMINATION

By Mr. Murphy:

Q Cdr. Rivard, I am a little bit confused about the
times. As I understand your testimony, the first
report of the Fitzgerald missing that was received from
the Anderson was at 2025. Is that correct?
A. That is correct.

Q. I would like to --


Q. That would be the report or the record of Sault Ste. Marie; that would be the record received at Sault Ste. Marie?

A. Yes.

Q. I would like to show you what has been introduced in here as Exhibit 80-E, which I understand, according to Capt. Millradt's testimony, it is the radio log of the Soo Station, and would you tell me whether or not that indicates the call to which you had reference?

A. Are you talking about this right here (indicating)?

Q. I don't know, sir. I would like you to tell me if that call about which you testified is shown in the radio log of Sault Ste. Marie?

A. This is a radio log of Sault Ste. Marie, and from what I read here it says, "Sent Coast Guard District 9 Cleveland."

There is a notation that I can't understand. It indicates Priority 1100370 Zulu. I can interpret some of these; however, your question is:

"Is this the information that Sault Ste. Marie received, or is it the information that Sault Ste. Marie sent to us?"

Q. All right. My question related to your testimony
that Sault Ste. Marie received the first call from the
Anderson at 2025 if I am correct. If I am not correct,
tell me.

If that is the information, then that call was
received from the Soo Station, which would appear in
the Soo radio log, wouldn't it?

I don't know, maybe it wouldn't.

A. It should.

Q. My question is: Can you show in that radio log
where that radio call appears, if it appears.

A. I believe this is the one you are referring to
(indicating)?

Q. Would you read it, please, sir? Whatever it says,
would you read it?

A. "The NOGTI," and I take this to mean Sault Ste. Marie --
again I can't tell what that notation is. It is NOG.

REAR ADMIRAL BARROW: Just read what
you see here.

A. It reads, "Sent CG DIST, the 9th CLEVE, NTM, MR,
9/1721-5(Pl10037Z)."

Q. All right. Now, could you interpret that 11 --
I'm sorry, I thought you were finished. Is there a time
shown next to that?

A. There is a time shown next to that of 0118 Zulu.

Q. And would you interpret that?
A. That time is 2018.
Q. And would that be the call that the Soo received from the Anderson to which you had reference, the 2025? Would you explain that for me just so I can understand why one record shows 2025 and the other shows 2018 if that's the proper interpretation of it?
A. Not knowing all of the notations on this line, I really can't answer that.
However, it would appear to me that that was the time that the group, Group Sault Ste. Marie, notified the District of what the Arthur M. Anderson had told the Soo.
Q. I see. And your record, then, to which you are referring at 2025, what record was that, sir?
A. The record that I am referring to is Group Sault Ste. Marie's message: "Priority 110413 Zulu."
Q. That is a report from the Soo to Cleveland or to your station; is that right?
A. That is correct.
Q. I see, and that shows that that report was received at what time, sir?
A. This report was received at 2330 Zulu.
Q. And the message again?
A. I am speaking about this particular message.
Other time had transpired by telephone.
Q. What appears in that message, then, to which you make reference as 2025, would you read it just so that I can see what it is?
A. Within the text, appears: "situation A. 1101257 Zulu November 1975 Groop Soo received call on FM, Channel 12 from Steamer Arthur M. Anderson, call sign Whiskey Echo, 4805."
Q. Does it show the time that Group Soo received that call?
A. It shows 11, 0125 Zulu.
Q. And that converted is 2025, is that correct?
A. Yes, sir.
Q. I would like to show you also the Exhibit 35-B, which is the radio telephone log of the Steamer Arthur M. Anderson, which has been introduced into evidence, and I will call your attention to an entry in the log, 11/10, which shows the time at 2000, 2002, a call made on Channel 16 and 12, NOG, position, Lake Superior, called Soo, Fitzgerald miss, and signed by one of the mates. I can't read his signature.

Is there any reference in any of your records to having received such a call at that time from the Anderson, including Exhibit 80-E, which has been introduced as a radio log of the Soo Station?
A. Well, I have to examine these papers that I have
with me. However, this is not a complete file of the
case. I can look through these and see, but your question
again: Is there any reference to that time about a call
made about that time received at the Soo as indicated
in the radio telephone log of the Anderson? I don't
recall seeing any.

However, this is the message that I have indicating
the time the call was received, but I would have to go
through the complete file in order to say whether there
is any reference to that one.

Q. I wouldn't ask you to do that. I was trying to
see whether there was a way by the records that you have
here or by the exhibit to try to see what the relationship
was of those calls; but apparently there isn't any
reference to that radio telephone call from the Anderson
in the Soo log, is there, about that time, or if there
is, I would like to know?

REAR ADMIRAL BARROW: Off the record
momentarily.

(Discussion off the record.)

REAR ADMIRAL BARROW: On the record.

What you have been asked to do is look through
Group Soo's radio log and answer the question if
there is anything in there which indicates the
message, which counsel indicated was originated
from the Arthur Anderson, as indicated in the log book.

So when you have completed the look through the log book, please inform us of your answer.

THE WITNESS: Right, and that is at the 2000 Romeo Time that you are asking?

MR. MURPHY: Yes.

THE WITNESS: Around 2000, not that I can see.

However, there is a lot of notations on this radio log that I do not understand and I would have to have some of it interpreted to see just exactly what it has to say.

In fact, that time that I gave you before of 0188 Zulu, it appears that that did not have any relationship to that case. There appears a line where Soo indicates they were sending a notice to the mariners, so that time is not correct, and that time I gave you before of 0188, looking through that now upon examination, appears to apply to a notice to mariners and not to any reference to the Fitzgerald.

I would like to correct that.

MR. MURPHY: Or the Anderson?

THE WITNESS: Yes.
Q. Is there any reference in that radio call from the
Anderson in the neighborhood of 2000 or 2002 from the
Anderson?

CAPT. ZABINSKI: Mr. Murphy, what
log are you referring to? I don't think the
record is clear.

What log is the witness referring to at the
present time?

CDR. LOOSMORE: Exhibit 80-E. It
is the Group Sault Ste. Marie radio log dated
11 November 1975 referring to a page marked 80-F.

CAPT. ZABINSKI: 80-F covers what date?

CDR. LOOSMORE: 11 November.

By Mr. Murphy:

Q. And you were responding to another entry in there, sir?

A. Well, as I had indicated before, that reference
to a conversation with the Arthur M. Anderson, I indicated
it was 0118. Now I am familiarizing myself with the
notation. That transmission was at 0132 Zulu.

Q. Which would be what time, Romeo?

A. 2032.

Q. 2032. Also, I will hand you Exhibit 81-I which has
been introduced as the Soo controlled traffic summary,
and I will ask you if that record includes the call that
you referred to or the call at 2002 or thereabouts that
is in the radio telephone log of the Anderson?

A. Apparently during the period covered from 2000 through 2040, there does not appear to be any reference to that.

REAR ADMIRAL BARROW: Are these local times that you are dealing with?

THE WITNESS: Those are Romeo times that I was just referring to.

CDR. LOOSMORE: The witness was referring to 81-P, papa, and 81-Q.

By Mr. Murphy:

Q. Commander, could you tell us what your records indicate was the last time and date and by whom the recovery of debris of the Fitzgerald, or by what unit, I should say?

A. I would have to check the complete record on that, but objects were being recovered just about every day of the search.

Q. Just quickly looking, without looking through all your records, what is the last date that you see, if you could just tell us what that is, please?

A. A greater portion of the debris that was found was found by 0315 Zulu, which would be about 2215 Romeo Time on the 12th, and there are approximately 20 items that appear on that list.

That list I gave in testimony a while ago.
Q. Thank you. You also mentioned a search by Canadian authorities.

Did you receive a report from them, a written report with respect to the nature of the search and the times involved?

A. We received from the on-scene commander at various times a report on what the Canadian aircraft were doing.

We also had telephone conversations with the Rescue Coordination Center in Trenton that indicated what the Canadian forces were doing.

Q. I see. Is there any specific record of that, or are those just general reports?

A. We have, throughout our record information, what the Canadian forces and what the Canadian Coast Guard did.

Q. You mentioned that there were limitations with respect to the use of the Naugatuck relating to winds and sea conditions.

Are there any similar limitations with respect to 40 footers?

A. Yes, there are. I believe that they are contained in Annex India of the Coast Guard District Ninth Operation Plan, which indicates a limitation of operating, and this is to the best of my knowledge, more than 15 miles offshore or in winds in excess of 30 knots.

I am not positive exactly, but it is in that general
area.

MR. MURPHY: I have no further questions. Thank you, sir.

REAR ADMIRAL BARROW: Anything by the Board?

CDR. LOOSMORE: I have a couple questions.

EXAMINATION

By Cdr. Loosmore:

Q. Commander Rivard, do you have an original copy of the message that RCC received from anyone concerning the Fitzgerald?

A. I just got a group message that contained most of the information on the case.

However, it is not a complete file. I can indicate which is the earliest one I have, but there are earlier ones than this that are available.

Q. Could I ask you to check your file and provide the Board with a copy of the first notification to perhaps clear up this question on when your staff and perhaps when the Coast Guard at all was notified of this?

A. Yes.

Q. Did you prepare situation reports, did your staff prepare situation reports during the course of that search?
A. Yes. Our Rescue Coordination Center control was prepared, and situation reports are then transmitted to the Commander of the Atlantic area.

Q. What frequency was that?

A. These were transmitted via teletype.

Q. I mean how often were they transmitted?

A. They were submitted approximately once a day at the end of the day's activity.

Q. Do you have those with you, or could I ask you to submit those?

A. I do not have all of them with me, no.

REAR ADMIRAL BARROW: We should have them for the record.

CDR. LOOSMORE: Yes, sir.

Q. Would you include those along with that original message, and do you have a copy -- would you include a copy of the safety broadcast which you referred to, and would you explain again just what that is?

A. The safety broadcast that indicated that the Steamer Fitzgerald, that there was concern about the safety of the Steamer Fitzgerald and asking for assistance of vessels and helping with the search, to what degree they can.

Q. Was there just one of those?

A. That broadcast is made on a regularly scheduled time
throughout an event. This one went, I believe, from somewhere around 2200 on the 10th until search efforts were suspended.

I don't know right offhand what time this one was stopped, but these are scheduled and repeated many times throughout the search.

Q: Is that sometimes referred to as an urgent broadcast?
A: An urgent marine information broadcast.

Q: Would you please include a copy, if it is available, of whatever was included in that broadcast with other information?
A: Yes.

CDR. LOOSMORE: That's all I have.
REAR ADMIRAL BARROW: Capt. Wilson?
CAPT. WILSON: Yes, sir. I just have a couple.

EXAMINATION

By Capt. Wilson:

Q: I think there may have been a little confusion on the messages, apparently because of the times, and reference was made to a sitrep or situation report, and I think you were referring to some of the operational messages.

Could you describe the difference between a sitrep and the other messages that you are referring to?

A: A situation report or sitrep is used during a particular
operation to keep the operational commander advised on
what is happening. This message will transmit what the
conditions are on scene and what units are searching
and everything to do with a particular mission.

A sitrep is nothing more than a name that is given
to a message that pertains to a particular mission.

Q. Now, in that regard, if there are variances between
an operational message that was handled and the situation
report, which is usually considered to have the best
information in it?

Maybe I can rephrase it or make it a little easier.

Who would prepare or draft the situation report?

A. Within the District on sitreps that are submitted
to the area, the Rescue Coordination Center controller
would draft the sitrep. On a vessel that is reporting
a situation report, it would be the OOD. At a group
office, it would be the OOD who would draft it.

On an aircraft, it would be either the pilot or the
co-pilot that would actually draft a sitrep.

Q. Also, you mentioned the cooperation in conducting
the search on the part of the commercial shippers, both
laker and saltwater traffic.

Is there a law or mandatory requirement for these
vessels to assist or is this purely voluntary within
considerations of the weather and so on?
A. Yes, I believe there is a requirement due to an International Convention that requires any vessel learning -- requires a master of a vessel learning of another vessel that is in distress, that he should either proceed to the scene and assist in the distress or put in his log why he did not do that.

Q. And in this instance, in this case, there were no instances of vessels that did not assist to the best of their ability?

A. To the best of my knowledge, no.

CAPT. WILSON: Thank you. That's all I have.

REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:

Q. Cdr. Rivard, if the Soo was going to contact the RCC District about the Fitzgerald case, by what means would they have notified RCC about the situation, if you know?

Would it be by phone, by teletype, by radio, carrier pigeon?

A. Initially by telephone. However, they would also have the capability of doing it by teletype.

Q. Do you know how the initial message was sent or how the initial transmission was sent by the Soo to RCC?
A. That was by telephone, sir.
Q. How do you know that?
A. Because of a narrative of the Rescue Coordination Center controller for this mission or for the sinking of the Fitzgerald case.
Q. A narrative? There is a notation that was made right at that time in the file; is that your indication?
A. Yes, there is a notation on the narrative, which is in our file.

In addition to that, there is a message from Group Sault Ste. Marie which indicates what time they transmitted this information to the Rescue Coordination Center.

I don't recall whether the information in these messages says how it was transmitted, however.

CAPT. ZABINSKI: Mr. Chairman, I would request the witness be excused for a moment to obtain these messages, so that we can pursue it while we are interrogating him.

Is it here in the building?

THE WITNESS: Yes, sir.

Do you want all of the messages that Cdr. Loosmore had asked to be provided?

CAPT. ZABINSKI: At the same time, that would be fine.

MR. MURPHY: Mr. Chairman, may
I make the statement that perhaps in the interest of saving time, the purpose of my entering into this was only in an attempt to clarify some discrepancies which appeared to be in the times and I want to state for the record that it is not my intention in any way to indicate any criticism of the Coast Guard with respect to this rescue operation.

If I may say so, sir, on behalf of Oglebay-Norton Co., the rescue operation from SAR and from the Soo was conducted with great promise and with great efficiency and for the purposes of the record, if the Board would like to clarify this matter by requesting that the documents be introduced at a later date, in order to save time at this time, we would certainly have no objections.

REAR ADMIRAL BARROW: Thank you for your comments, but we have additional questions and we have some additional information, apparently, which this witness has available to him which is not here at this time, and I think it is a good idea to bring those things forward and clarify the record.

We will take a recess for 10 minutes. Thank you.
(Recess had.)

REAR ADMIRAL BARROW: Let the record show we reconvened at 12:33. Counsel for party in interest, as we started today. Continue, Cdr. Loosmore.

CDR. LOOSMORE: I believe Capt. Zabinski was questioning, sir.

EXAMINATION

By Capt. Zabinski:

Q Cdr. Rivard, have you located the notations when the first word of the Fitzgerald incident was received by RCC?

A I have, sir.

Q And what is it? How was that word received? Was it by telephone, teletype or by radio?

A It does not indicate on this document how it was received, but this is a narrative on the case file of the Fitzgerald sinking, and it is a narrative that is kept by the Rescue Coordination Controller.

Q And is there a time or any date?

A The time indicated on this narrative is 0145 Zulu, which converts to 2045 Zulu.

Q Do you mean Romeo? Do you mean 2045 Romeo or --

A Pardon me, 2045 Romeo.

Q And what does that say, what does that document
indicate?

A. "Anderson had Fitzgerald on radar. Taking on some water through vents." Then there is an abbreviation. It says "EX, difficulty." This I would believe is "experiencing difficulty."

"Listing a little. Visibility good - excellent."

And that is the end of the information that came in on 0145 Zulu.

Q. So the first word of the Anderson incident, or rather the Fitzgerald incident came into RCC at 2045 Romeo as indicated by this notation?

A. Yes, sir.

Q. Does it indicate who received that?

A. It does not indicate on here who received it.

Q. Does it indicate where it came from?

A. Along with the notation, it indicates Group Soo.

Q. Does it indicate by what means it was received?

A. It does not, sir.

Q. You keep a summary or a chronology of the cases, is that correct?

A. This is a summary chronology, narrative of the case, sir.

Q. Have you reduced that entry into the chronology?

A. That entry is a part of the chronology, sir.

Q. What does your next entry read?
A. The next entry is 0210 Zulu, which would be 2110 Romeo.

Q. What does that read?

A. That reads, "Anderson 10 miles behind Fitzgerald, lost on radar, three upbound ships should have passed, last report 1900, 1915 estimate, within one mile negative, sighting radar or visually, 15 miles due north of Crisp Point."

Q. Does the notation indicate who received it?

A. No, sir.

Q. Does it indicate by what means it was received?

A. No, sir.

Q. Does it indicate from whom it was received?

A. No, sir.

Q. This is also a handwritten note, is that correct?

A. Yes, sir.

Q. And it would be handwritten by whom, would you say?

A. It was probably handwritten by Lt. J. J. Mumford, the Rescue Coordination Center Controller at that time.

Q. At the time that he was receiving it, would you say?

A. That, I can't say, sir, whether he wrote it down as he was receiving it. It appears from the way it was written, however, that it was a short notation, based upon getting that information directly.

Q. Is it your testimony then that the first report or
receipt of the Fitzgerald incident was received in RCC at 2045 Romeo on the 10th of November?

A. At approximately that time, I can't say that that was the exact time. It could have been five or even 10 minutes either way.

As far as I could say, the record indicates that.

Q. Do you keep a tape recorder of incoming telephone conversations?

A. Yes, we do normally. However, we have just replaced our old tape recorder with a new tape recorder, because the old one was not operating properly.

Subsequent to the Fitzgerald case, we have received our new tape recorder, and it is working.

Q. Was any tape recorder being kept on the 10th?

A. Yes, sir. That machine was on; however, the conversations with the Soo were not picked up by the machine.

Q. Why not, if you know?

A. It appears that on that night that that machine was not recording the information that came from two of the instruments that are in the RCC.

We have three instruments and each instrument has numerous buttons where they can communicate on various telephone lines.

It appears that one of those stations was recording, but two other stations were not recording.
It would then appear that if this came in by telephone, which I have been told it did, that those two stations, it must have come to one of those two stations not recording. That was because we were getting a new one and the old one was not working.

Q. How long had it been malfunctioning?
A. It had been malfunctioning as long as I have been here, approximately four months.

Q. Have you or has anyone replayed the tape of the 10th to ascertain, in fact, that the conversations between RCC, certain conversations between RCC and outlying units were not, in fact, being recorded?
A. Yes. I investigated the tape myself.

Q. When was that, sir?
A. Pardon me?

Q. When was that?
A. Approximately three weeks ago.

Q. Shortly after the casualty then?
A. Yes, sir.

Q. Why were you investigating the tape?
A. Well, in examining the record, I wanted to tie down some of the times that were in there.

Q. Is this routine or is this something special that was done for the Fitzgerald case?
A. Well, many times during the process of a case, there
are discrepancies on when individual events are recorded. I wanted to prepare myself properly with respect to this case.

Q. Is that tape still available?
A. Yes, sir.

CAPT. ZABINSKI: Counselor, if you will read and follow from the radio log of the Soo.

Q. You indicate a time that the first message was received by U. S. Coast Guard Group Sault Ste. Marie on 11 November 1975, which you have listed in Zulu Time, so actually the times that we are looking for would be Eastern Standard Time the night of the 10th, and you indicated that the first communication from the Anderson concerning the Fitzgerald was received at what time?
A. At 2032 Romeo.

Q. 2032?
A. Yes.

Q. Could you read that message for the record, please, exactly as it is written?

Q. Just tell us what it says; don't tell us what you think it means.
A. "Arthur M. Anderson OVR/TI NOG OVR/TI Anderson, I am very concerned with the welfare of the Steamer Edmund Fitzgerald, he was right in front of us experiencing a
little difficulty, he was taking on a small amount of
water and none of the U/B ships had passed him, and I
can see no lights as before and don't have him on radar.
I just hope he didn't take a nosedive OVR/TI-NOG RGR TU
for info, we will try and contact him OVR/TI Anderson
RGR TU and also you might try WLC Rogers City, have him
ring his buzzer on AM and he might be able to contact him,
just to be sure that he is there OVR/TI NOG RGR we will
try that OVR/TI Anderson RGR TI NOG will get back to you.
Out."

Q. What is the time after that?
A. The time is 2032 Romeo.

CDR. LOOSMORE: What exhibit is this?
CAPT. ZABINSKI: This is Exhibit 80-F.

By Capt. Zabinski:

Q. If you know, this 2032 Romeo, does this indicate
the end of the transmission, the beginning of the trans-
mission or some other part of the transmission, if you
know?
A. Since that appears at the end of what is written
there, it would appear to indicate the end of the trans-
mission.

Q. That was the time of the end of the communication
between the Soo and the Anderson, is that correct?
A. Yes, sir.
CAPT. ZABINSKI: That's all I have.

REAR ADMIRAL BARROW: Mr. Murphy?

MR. MURPHY: I have nothing.

Mr. Chairman.

REAR ADMIRAL BARROW: Cdr. Loosmore?

First, let's go off the record.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

EXAMINATION

By Cdr. Loosmore:

Q. Cdr. Rivard, earlier in your testimony I asked you to obtain some information and forward it to the Board. During the break, were you able to obtain any of those information?

A. Yes, I was.

Q. May I see those, please?

A. Yes. Those are the situation reports transmitted from the Rescue Coordination Center in Cleveland to the Commander of the Atlantic Area.

CDR. LOOSMORE: Sir, I have seven message sheets which are situation reports of the sinking of the Steamer Edmund Fitzgerald on Lake Superior from the Great Lakes SARCOORD -- no, it is from COGARD, New York; Sitrep 1, and a modification to Sitrep 1 and 2 through 6, and a final.
I would like to request those be marked as 93-A through whatever that turns out to be.

REAR ADMIRAL BARROW: Mark them so for identification.

CDR. LOOSMORE: That would be Exhibit 93-A through 93-G.

(Exhibits 93-A through 93-G were marked for identification and made part of the record.)

By Cdr. Loosmore:

Q Cdr. Rivard, these are Xerox copies of the messages. Have you seen the originals of the messages?

A Yes, sir.

Q Do you know whether or not these are, in fact, true copies, or can you certify these copies?

A I have the originals here, but I will be able to certify those as true copies.

CAPT. ZABINSKI: If you would, please.

Q Would you do that, Commander?

REAR ADMIRAL BARROW: Let's go off the record momentarily.

(Discussion off the record.)

By Cdr. Loosmore:

Q Do you have copies of the safety message, Cdr. Rivard?
A  Yes.

CDR. LOOSMORE:  I have a copy again

of a message from Great Lakes SARCOORD, Cleveland,
Ohio, 110338 Lulu, November 1975, urgent broadcast.

Q  Was this message, in fact, canceled?

A  Yes, it was.

Q  How was that cancellation accomplished?

A  By message, a copy of which I have here.

Q  And this is a message P 140227 Zulu, November '75,
the text of which is 110338 Zulu, November 1975, and it
says "Make cancellation BCST," which I believe means
broadcast.

I notice these are also copies. Are you able to
certify that these are true copies of the original?

A  Yes (witness so certifies).

CDR. LOOSMORE:  Sir, I would like
to request that those be marked 94-A and B for
identification.

REAR ADMIRAL BARROW:  Mark them so for
identification.

(Exhibits 94-A and 94-B
were marked for identifi-
cation and made part
of the record.)

REAR ADMIRAL BARROW:  I think we need a
certification stamp.

CDR. LOOSMORE: Yes, sir, I will have it stamped.

Do you want to see them?

MR. MURPHY: No, thank you.

By Cdr. Loosmore:

Q. You were asked for an original copy of whatever the first message into RCC was.

A. This is a copy that recorded the first information that came into RCC.

CDR. LOOSMORE: I have a message:

P 110413 Zulu, November '75, 110413, Zulu, from COMCOGARD GRU Sault Ste. Marie MI to NC/Great Lakes SARCOORD, Cleveland, Sitrep One Distress Stmr. Edmund Fitzgerald missing Lake Superior."

This indicates under "1. Situation: A. 110125 Zulu, Nov. 75 GRU SOO Received Call on FM CH 12 FM Stmr. Arthur M. Anderson."

This is additional information on the Edmund Fitzgerald with an approximation position and the weather and so forth.

I request that this be marked Exhibit 95 for identification.

REAR ADMIRAL BARROW: Mark it 95 for identification.
CDR. LOOSMORE: This is an original message. (Exhibit No. 95 was marked for identification and made part of the record.)

THE WITNESS: I must say that this is the file copy in the Rescue Coordination Center. The process is that the message comes in on the teletype machine in the message center and it has the master message there. Then it is given to RCC, which is put in our file. This is the RCC file, but it is not the original copy of that message, which lies in the message center.

CDR. LOOSMORE: That's all I have, sir.

REAR ADMIRAL BARROW: Exhibits 93-A through G for identification, Exhibits 94-A and B for identification, and 95 are admitted into evidence without objection.

MR. MURPHY: Yes, sir.

(Exhibits Nos. 93-A through G, 94-A and B, and 95, previously marked for identification, were received in evidence.)
REAR ADMIRAL BARROW: Are there any further questions by the Board or by counsel?

CAPT. ZABINSKI: No questions.

REAR ADMIRAL BARROW: Interested parties?

(No response.)

REAR ADMIRAL BARROW: Commander, I will ask you, before we excuse you, if there is anything that you have knowledge of with regard to your official duties or otherwise, which would assist the Board in its purpose, which is to determine the cause of the casualty? Is there anything that has not been elicited by the questions?

THE WITNESS: No, sir. I have nothing.

REAR ADMIRAL BARROW: Thank you very much. You are excused. You are cautioned not to discuss your testimony with others other than counsel until the conclusion of the investigation.

(Witness excused.)

REAR ADMIRAL BARROW: Let's take a recess at this time until 1415.

(At 1:00 p. m. a luncheon recess was had, to reconvene at 2:15 p. m.)
AFTERNOON SESSION

2:22 p.m.

REAR ADMIRAL BARROW: Let the record show we reconvened at 2:22. Counsel for party in interest Oglebay-Norton present.

Before we get started, I would like to advise for the record that I had received a formal written motion to intervene as party in interest by attorneys for District 2, Marine Engineers Beneficial Association, Associated Maritime Officers, AFL-CIO, and the United Steelworkers of America, Local No. 5000. That was an oral petition received earlier which I ruled upon the first day of the proceeding.

We'll make the formal written application a part of the record, and I will respond in writing to the letter presented to me.

CDR. LOOSMORE: As an exhibit, it will be Exhibit 96, or it can be an attachment if you prefer, sir.

REAR ADMIRAL BARROW: Make it Exhibit 96. (Exhibit 96 was marked for identification and made part of the record.)

CDR. LOOSMORE: It has been marked as Exhibit 96 for identification, sir.
REAR ADMIRAL BARROW: Counsel, do you want to see this?

MR. MURPHY: I will just take a look at it, Mr. Chairman.

REAR ADMIRAL BARROW: Exhibit 96 for identification as entered into the record without objection.

Cdr. Loosmore, call your next witness.

CDR. LOOSMORE: Sir, I have been provided with a certified copy of CO Group Sault Ste. Marie Message 110413 Zulu to substitute for Exhibit 95.

I have marked it 95, and with your permission, I will substitute this for the original and return the original to the SAR file.

MR. MURPHY: No objection.

CDR. LOOSMORE: The Board calls Lt. Mumford.

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CHARLES R. MUMFORD

was called as a witness and, having been first duly sworn, testified as follows:

EXAMINATION

By Cdr. Loosmore:

Q. Would you state your name, rank, service number and
duty station, please?

A. Charles R. Mumford, 9195, my present duty station is the Coast Guard Ninth District, a Controller.

REAR ADMIRAL BARROW: The purpose for this investigation is to investigate the sinking of the SS Edmund Fitzgerald. You are requested to respond to the questions as clearly and as concisely as possible and to speak slowly because we are trying to take a verbatim record.

I would ask you to speak up very clearly.

Thank you.

THE WITNESS: Yes, sir.

REAR ADMIRAL BARROW: Cdr. Loosmore, continue.

CDR. LOOSMORE: Thank you, sir.

By Cdr. Loosmore:

Q. Would you again state your duty station, please?

A. Coast Guard District 9, Cleveland, Ohio, the RCC Controller.

Q. The RCC Controller?

A. Yes.

Q. Does this duty as RCC Controller involve watch standing?

A. Yes.

Q. Did you stand a watch on the 10th of November?

A. Yes, I did.
Q. Were you involved in any way with the RCC activities concerning the Edmund Fitzgerald?

A. Yes, sir, I was the duty controller that night.

Q. Did you receive a notification of the difficulty of the Edmund Fitzgerald?

A. Yes, sir, I did.

Q. Do you know what time it was when you received that?

A. The time was 01450.

Q. What would that be local time?

A. 8:45.

CAPT. ZABINSKI: What time was that?

By Cdr. Loosmore:

Q. How did you receive that notification?

A. I received it over the Autovon telephone.

Q. Do you know --

REAR ADMIRAL BARROW: Just a minute, that's A-u-t-o-v-o-n.

By Cdr. Loosmore:

Q. From what duty station was this phone call?

A. It was from Group Cdr. Sault Ste. Marie.

Q. Group Cdr. Sault Ste. Marie?

A. Yes, sir.

Q. And do you know who it was that called you specifically?
A. No, sir, not by name.

Q. Did he identify himself?

A. As Group Soo, as Group Soo calling me. I didn’t ask his name exactly.

Q. What was it that he informed you over the phone?

A. He informed that the Anderson, Steamer Anderson, had the Fitzgerald on radar and had lost it and she was taking on some water through the vents and experiencing a little difficulty, listing a little.

He also stated visibility was good to excellent.

Q. Was that the extent of that phone call?

A. That was the extent of that phone call; yes, sir.

Q. What was the purpose of that call?

A. Just to advise us that a ship was in possible distress.

Q. What was the next you heard about the Fitzgerald?

A. That was at 02100, and more information, the Anderson was 10 miles behind the Fitzgerald. They had lost her on radar.

Q. Slow down.

A. Also, that there were three upbound vessels that should have passed within one mile of the Fitzgerald and there was negative sightings on radar or visually and the last report received from the Fitzgerald was 1900 to 1915, local.

Q. Were you requested by Group Soo to do anything?
A. I don't know if they requested, but the action I took was to alert our air station at Traverse City, Michigan, to launch an HU-16.

Q. Did you tell Traverse City to launch one?
A. Yes, sir, I instructed them to launch.

Q. You instructed them to launch?
A. Yes.

Q. And what time was that?
A. 02150.

Q. What means of communication did you use for that?
A. That would be the Autovon telephone system again.

Q. What was the next thing you heard about the Fitzgerald?
A. About the Fitzgerald itself or the action taken at that time?

Q. What was the action of any kind concerning the Fitzgerald?
A. Traverse City requests permission to carry flares on board the aircraft, and at 0216 I advised the controller, the Canadian Controller in Trenton, I requested any assistance they might be able to provide.

At 0217 I had the Admiral's permission to carry flares on board the aircraft if the COD air station had no objection.

Q. All right. Continue. What was the next step?
At 0218 Zulu, I passed the "permission granted" on Traverse City and requested to have helo backups.

Q. And how did you pass that?
A. Over the Autovon telephone system.
Q. And that is a helo backup?
A. To have helos launched as soon as possible and to follow the aircraft up.
Q. Does this amount to two helicopters?
A. I said helo. I did not say one or two but whatever they could get going.
Q. But you did order a helo?
A. Yes.
Q. What did you think that meant?
A. If they had the pilots and everything on board at that time to send two, but they finally came back and said they had two to send.
Q. And what did they do?
A. They finally launched two helicopters.
Q. And the next step?
A. The next step was 0225 Group Soo advised that the CO of the Naugatuck thought it was too bad for her to get under way in these type of sea conditions.

I told him to go ahead and get under way and stand by at the mouth of the river.
Q. Meaning which river?
St. Mary's River.

Q. And who were you talking to then?

A. It was the Group Soo.

Q. And by what means?

A. The Autovon telephone system.

Q. And the next step?

A. I called the Chief of Operations and briefed him on what was happening. He instructed me to start me calling the Woodrush.

Q. All right. And what time was that?

A. That was at 02300.

Q. And did you do so?

A. Yes, sir, not right at that one minute though. I was still taking other action.

Q. And what action was that?

A. I called the Chief of Search and Rescue and instructed him, and he wanted to see if I could get a C-130 to assist.

Q. And the next step?

A. I received a telephone call from the Controller, the Canadian Controller at Trenton. That was at 0240.

He advised me that Rescue 325 was available, but it was on another case right now, and he would divert it. He would advise me.

Approximately at the same time I called Mr. Kirby, a dispatcher for the Oglebay-Norton Co.
Q. What was his name again?
A. Kirby, K-i-r-b-y.

I called Capt. Jacobsen also who was with the Oglebay-Norton Co. I also called Mr. Rindfleisch.

Q. And who is he?
A. Mr. Rindfleisch is a dispatcher for the Oglebay-Norton Co.

Q. And what time was that?
A. That was by phone call with the Canadian Controller between 0240 and 0300.

Q. Lieutenant, I have Exhibit 95 which is a message from Group Soo to SARCOORD, Cleveland. Have you ever seen that?
A. Yes, sir.

Q. Was that received on the watch while you were there?
A. Yes, sir; it was.

Q. Does that indicate anything about when Group Soo talked to RCC?
A. Yes, sir, paragraph 2, "Action taken," at Subparagraph (a) it states that RCC was notified 110140 Zulu.

Q. What time do your records indicate?
A. My record indicates that I received a call from the Group Soo at 01450.

Q. Did you have any information at any time during the beginning of this about what time Group Soo received the
first call?

A. No, sir; my first telephone call I got was the
information that I have. They did not say when they re-
ceived the call. They notified me when they received the
call.

Q. Did they tell you about anything that they had done
between receiving the first call and contacting you?

A. We talked about -- I asked about other vessels in
the area, if anybody else had him on radio or tried to
contact them on radio or check with all of the other ships
in the area, but as far as any action that they had taken,
I don't know if there was any action or what the action
was that they took at that time.

CDR. LOOMIS: That's what I have,
sir.

REAR ADMIRAL BARROW: Capt. Wilson?

CAPT. WILSON: Yes, sir.

EXAMINATION

By Capt. Wilson:

Q. Lt. Mumford, the times you indicate on your running log
or your sitreps concerning phone conversations particularly,
as you have just indicated, do you indicate the time that
you commence the phone call or the time you complete the
phone call? What is your normal procedure?

A. I tried to log it when I receive the phone call,
but sometimes I glance at the clock and put it down as I am writing it. I try normally to write it when I receive the call.

Q. When you start the conversation?

A. Once I realize it is a case and not some other type of phone call.

Q. In order to do this, is there a wall clock or do you use a wrist watch?

A. There is a wall clock on the bulkhead with the Greenwich time right on the clock in front of me.

Q. Is there a periodic check to see that it is working right or to ascertain the correct time indication?

A. The clock on our bulkhead is adjusted at 6:00 o'clock every evening by the Federal Building and we have five clocks, and we just compare them all in.

CAPT. WILSON: That's all I have.

REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:

Q. Was the full conversation between you and Soo recorded?

A. The tape recorder was in operation. It would be recorded, but I understand the tape recording didn't pick up my conversation with the Soo. I was with Cdr. Rivard and we tried to play it back.
Q. And you didn't hear anything?
A. No, sir; we could not find my conversations with the Soo or with Traverse City. The assistant controller's conversation was picked up.
Q. How many positions are there in RCC?
A. Three positions.
Q. And you keep -- you have one and the assistant controller has another.
   Who has the third position?
A. It is a spare position. It is used for other things when the developments come up.
Q. It records each position and has a separate track; is that the way it works out?
A. I believe so. They do record each different position.
Q. But your position was not recording on that night, is that correct?
A. My position was not recording.
Q. How about the assistant controller's position, was that recording?
A. The small part of the tape that I heard did record some of the assistant controller's conversation.
Q. Is this automatic or is this something that you have control over?
A. This is automatic. It is continuous 24 hours a day.
Q. Is there a way that you could bypass the tape?
A. You cannot and make a phone call in the RCC room. All phones coming in are all recorded.

Q. Any conversation in or out would be recorded on that, if the recorder were working?

A. Yes, sir.

Q. Thank you.

CAPT. ZABINSKI: That's all I have, Admiral.

REAR ADMIRAL BARROW: Counselor?

MR. MURPHY: Just one question.

EXAMINATION

By Mr. Murphy:

Q. Lieutenant, you mentioned that the communications here at the Rescue Center are recorded. What knowledge do you have of other stations, Coast Guard stations, where conversations and radio communications are recorded?

A. I am not familiar with recording devices they have at the other stations.

MR. MURPHY: All right. I have no further questions.

REAR ADMIRAL BARROW: By the Board, anything further?

CDR. LOOSMORE: No, sir.

REAR ADMIRAL BARROW: Is there anything else, Lieutenant, that you can recall from those
conversations or any knowledge that you have regarding the events that took place on the 10th and which are related to the sinking of the SS Edmund Fitzgerald that you think would be of assistance to the Board in determining the cause?

THE WITNESS: No, sir; I don't.

REAR ADMIRAL BARROW: Thank you very much. You are excused. You are cautioned not to discuss your testimony with anyone other than counsel before the conclusion of the investigation.

THE WITNESS: Yes, sir.

(Witness excused.)

(Recess had.)

REAR ADMIRAL BARROW: Back on the record, please.

CDR. LOOSMORE: Would you raise your with hand, please.
CHARLES H. LINDBERG was called as a witness and, being first duly sworn, testified as follows:

EXAMINATION

By Cdr. Loosmore:

Q. Would you please state your name, address and occupation?

A. Charles H. Lindberg, 27696 Orion Road, Perrysburg, and my occupation is wheelsman, seaman.

REAR ADMIRAL BARROW: Mr. Lindberg, the purpose of this investigation is to determine as closely as possible the cause for the sinking of the SS Edmund Fitzgerald on 10 November 1975.

As you perhaps are aware, there were no survivors to that sinking.

We are, therefore, trying to communicate with as many people as we can and question them on their knowledge of the Fitzgerald and the people who sailed it.

You are requested to answer the questions put to you by the Board and counsel as clearly and as concisely as you can without expanding beyond the scope of the question asked.

Please speak as clearly and as distinctly as you can.
We are trying to get a verbatim record.

Cdr. Loosmore?

By Cdr. Loosmore:

Q    Mr. Lindberg, do you hold a Coast Guard Merchant
Mariner’s license or document?
A    A document.
Q    Do you have that with you?
A    Yes, sir.

CDR. LOOSMORE:     I have a U. S.
Merchant Mariner’s document for Charles Harold
Lindberg, L-i-n-d-b-e-r-g, V782066, issued at
Toledo, Ohio, 15 October 1964, Able Seaman, any
waters, unlimited, coal passer, wiper, second cook,
invalidated for emergency services.

(Pause.)

CDR. LOOSMORE:     Let the record show
that the document has been returned to Mr. Lindberg.
Q    Mr. Lindberg, how old are you?
A    48.
Q    How long have you been sailing, sir?
A    Over 17 years consecutively and two years prior
to that, not two complete seasons.
Q    And how many of those 19 years of sailing were on
the Great Lakes?
A    All of them.
Q: In any of those 19 years, did you ever sail on the Fitzgerald?
A: Yes, sir.
Q: What was the most recent time you sailed on board the Fitzgerald?
Q: In what capacity?
A: As a watchman and wheelsman.
Q: And the most recent time prior to that?
A: 1964.
Q: And in what capacity?
A: AB deckwatch and watchman.
Q: And how many times prior to that had you sailed on the Fitzgerald?
A: Just those two times is all I have been on it.
Q: Have you ever had an opportunity to serve with Capt. McSorley?
A: On the Fitzgerald and on the W. W. Holloway.
Q: And when was that on the Holloway?
Q: And what were your duties in that case?
A: I was an AB deckwatch.
Q: And did you sail the whole season of '74?
A: No, sir; I sailed it, but not on the Fitzgerald.
Q: How much of the '74 season were you on the Fitzgerald?
Q  Did you begin the season on the Fitzgerald?
A  Yes, sir.
Q  So you were on board?
A  From fitout until I was transferred.
Q  Would that be roughly April to August?
A  August or September, maybe even October; I am not sure.

I would have to check any discharges, and I did not bring them with me.
Q  And you did not sail on the Fitzgerald this summer?
A  No, sir.
Q  In the process of that season or any other circumstance, did you feel you got to know Capt. McSorley?
A  Really know him, no; I didn't have that much to do with the man.
Q  Did you talk with him at times?
A  Oh, yes.
Q  In your duties as wheelsman, did you have an opportunity to observe him in the way he navigated the vessel?
A  Yes, sir.
Q  What was your impression of him as a sailor?
A  Very competent.
Q. Was he a talkative man or a quiet man?
A. It ran in streaks, just like the rest of us. Sometimes we talk and sometimes we don't.
Q. Was he predominantly one way or the other?
A. No.
Q. Were you ever on board or on duty with him when any kind of emergency situation arose?
A. No, sir.
Q. What did your duties as watchman involve?
A. Mostly routine maintenance work of the deck. I would get my orders from the first mate and carry them out, have the three deckhands and watch work for you.
Q. Did this maintenance involve anything with the hatches or vents?
A. Yes, sir.
Q. What did you have to do with the vents?
A. The vent pipes have mushroom caps and which they are threaded, and periodically we would take the vent caps off, wire brush and lubricate the threads and return them to their positions.
Q. What did you do with the hatches in the routine maintenance?
A. The hatches were just cleaned and painted.
Q. How about the hatch clamps?
A. They were painted, adjusted, and oiled.
Q How frequently was that done?
A There was no set routine.
Q How about --
A It was done --
Q Go ahead, sir.
A Maybe twice a year, maybe three times.
Q How frequently was the maintenance on the vent caps performed?
A I can't honestly answer that how frequently.
Q As watchman, did you have any duties during the loading or unloading of the vessel?
A Shifting of the boat, putting the hatches back on and clamping.
Q And what, sir?
A And clamping the hatches.
Q "Clamping."
A Anything else that was involved?
A As far as loading, no.
Q Loading or unloading?
A No, it was routine, shifting of the boat, watching the winches and boarding the ladder.
Q Did you always put the hatches on after it loaded, the hatch covers?
A Not always, no.
Q Under what --
Sometimes we'd leave them off to paint cargo holds, weather permissible, and we left it off so we could chip and paint.

Q. Did you always put the clamps on?
A. Yes, sir.
Q. All of them?
A. All of them? No, sir.
Q. Under what circumstances would you put all of them on?
A. We started putting hatches, the complete set on in the fall of the year, usually in September, in September all hatch clamps went on.
Q. What did you do prior to that?
A. Every other one.
Q. Why did you do it in September?
A. Well, that was considered the fall sailing season. It was just routine that all clamps went on.
Q. Wouldn't it take longer to unload?
A. Wouldn't it take longer to unload? Naturally.
Q. How long did it take to do it?
A. You could strip in an hour.
Q. What do you mean by strip?
A. Take the hatch covers off.
Q. How many people would that be?
A. Four.
Q. It used to be five.
Q  What brought about that change?
A  They limited the deck watches.
Q  When did that happen?
A  Either two or three years ago.
Q  What was the deck watch?
A  The deck watch was below the watchman and above the
deckhands. If the watchman was on the bow performing
other duties, the deck watch took care of the gang.
Q  Who takes care of the gang now?
A  Now, the watchman.
Q  The watchman?
A  Yes.
Q  Who provides lookout duties; is that part of the
watchman's duties?
A  The watchman is a lookout, yes.
Q  The watchman is a lookout?
A  Yes.
Q  Is he also on the lookout station?
A  No, sir.
Q  When is he on lookout?
A  When the captain calls for him in the rivers most of
the time. On the lakes, no.
Q  Does he also serve as sort of a messenger for the
watch?
A  No, I can't say he is a messenger.
Q. Is there anyone who does?
A. No, it is all done by either PA or ringing for somebody.
Q. Did you, as watchman on the Fitzgerald, have anything to do with the vents?
A. With the vents? Yes.
Q. What was that, other than maintenance?
A. Other than the maintenance, nothing.
Q. Did you ever have to adjust them or close them or open them?
A. We had to open and close them to take them off. We would close them in rough weather.
Q. What is involved with closing them?
A. Just screwing them down. They have a handle and you turn them.
Q. Is there a handle on them?
A. There is a handle, a knob.
Q. How far down do they move?
A. To totally close it, three inches, four inches.
Q. How can you tell whether they are open or closed?
A. There is a dog that you have to remove to take it off and when they are closed, there is a mark there and the dog is down and you can always stick your hand in the vent, up over.
Q. Can you tell by looking?
A. By looking?
Q. Yes.
A. Only if you were in a position to see the dog.
Q. If they go up and down a bit, can't you tell if they are up or down by looking at them?
A. Not really.
Q. Why not?
A. Well, there is such little difference in the position of looking at them, I wouldn't say so.
Q. How high are they?
A. How high do they stand?
Q. Yes.
A. What is that? 18 or 24 inches? (Indicating)
Q. When did you close the vents as a matter of routine?
A. If there was any spray or anything coming over the side, we would close the vents.
Q. As watchman, would you do that?
A. No, sir, we would wait for the first mate. The first mate would tell us to close the vents.
Q. Did you ever have an occasion in the time that you sailed to suggest to the first mate that it ought to be done?
A. No, sir; I was never on the Fitzgerald at that late in the season.
Q. Don't you have any weather in the early part of the
season?

A. I don't recall any weather last year at all in the spring.

Q. Have you ever been on the Fitzgerald when the weather was heavy?

A. Yes, sir.

Q. What kind of a ship was it; how did she ride?

A. She was as good boat.

Q. Did she move around much in the seaway?

A. Move?

Q. Roll, pitch?

A. It would pitch and roll, nothing extreme. I never had an extreme roll in it. In fact, I don't think I have ever cleared my dresser.

Q. Cleared your dresser? You mean having things fall off?

A. Yes, I never lost anything. I had a TV and stereo and I never took them off.

Q. Does your dresser have a lip around the end of it to keep things from falling off?

A. Very small, under a half an inch.

Q. Would you say an extreme roll would be one that would clear your dresser?

A. Yes, sir, that would tip over a bottle of hair lotion or something.

Q. What did you do for abandon ship? What would you do
for an abandon-ship drill?

A. What was my duty?

Q. Yes.

A. As watchman?

Q. As watchman.

A. I don't remember my bunk card number, but for
abandon ship, I was on the davits.

Q. Did you ever have an occasion to crank the davits
out?

A. Yes, sir.

Q. How long did it take?

A. Less than a minute to crank the boats out.

Q. How long did it take to launch a boat from the time
you heard the go?

A. If we were forward, how long would it take to launch
a boat?

Q. Yes.

A. That's hard to say. It would strictly be an estimate.

Q. Yes, a guess.

A. Five minutes.

Q. To get from the forward house all the way aft?

A. Back and to uncover the boats.

Q. Did you ever put a boat in the water?

A. Yes, sir.

Q. What were the circumstances of that?
A. Coast Guard inspections.
Q. Did you put a boat in the water at any time — any other time?
A. No, sir.
Q. How about a life raft, did the Fitzgerald have inflatables?
A. The Fitzgerald had inflatables.
Q. How many?
A. Two.
Q. Where were they?
A. One forward and one aft.
Q. Were you assigned to one of them?
A. I was not assigned to a life raft.
Q. Was anybody?
A. Yes, one man was at each raft.
Q. One man?
A. One man in each raft.
Q. Did you ever see one of those rafts open?
A. Yes, sir.
Q. What were the circumstances of that?
A. It was a mistake. It wasn't with Oglebay-Norton Co. It was with another line during the winter work.
Q. What happened?
A. Well, the trip line got pulled while we were doing winter maintenance.
Q. Yes.
A. And it just came out and went.
Q. The box opened up?
A. I beg your pardon?
Q. The canister opened up?
A. The canister opened up and the raft inflated.
Q. Then what happened? What did you do about that?
A. We bled it and sent it ashore to be repacked.
Q. Did you take the time to look at it?
A. Oh, yes.
Q. Did you ever see one opened except in this kind of training?
A. No, only films.
Q. Did you ever help the mate with the loading or unloading? Did he ever ask for help with drafts on unloading?
A. As a rule another mate is called out to watch the draft.
Q. They wouldn't have asked you as a watchman?
A. No, they wouldn't.
It has happened, yes.
Q. It has happened to you?
A. Yes, I have been asked to help with the draft.
Q. Are they generally pretty careful about the draft?
A. Yes, sir.
Q. You were talking about being forward, to go back,
that the boat -- how would you get back aft in the boat?

A. During a storm, we went on the spar deck.

Q. In good weather?

A. We didn't hold drills in bad weather.

Q. It wasn't necessary to go aft during bad weather?

A. It was necessary.

Q. It is necessary?

A. For the boats or anyone?

Q. For you at any time.

A. Yes, sir, it's always necessary to go aft.

Q. For what?

A. We work at both ends of the boat.

Q. Your berthing spaces were forward?

A. We berthed forward and ate aft.

Q. Ate aft?

A. Yes.

Q. How did you go aft in heavy weather?

A. Through the tunnels.

Q. Were there doors at each end of the tunnel?

A. Yes, each end.

Q. Do you recall, were those doors normally open or normally closed?

A. I think they were normally open.

Q. There weren't any signs that said keep them closed?

A. No.
Q  Was it cold in the tunnel?
A  Yes, ice forms on the tunnel.
Q  On what?
A  On the ship's sides, frost.
Q  Kind of like frost?
A  Yes.
Q  Did the tunnel have drains?
A  The tunnels have drains?
Q  Yes.
A  Into the cargo hold or the side tanks themselves.
Q  Which?
A  Into the side tank.
Q  Did you as watchman ever have occasion to use them?
A  Yes, when we would hose the tunnels and when we would scrub the tunnels.
Q  Did you do that very often?
A  When they got dirty.
Q  Certainly annually?
A  Twice a year.
Q  Once during the season and at the end?
A  Always during the season.
Q  One tunnel was kept spotless for guests.
A  Which one?
Q  The starboard.
Q  You say hose the tunnels, how do you do that?
What was the procedure?
A. We would take the hose, one inch, spray it, use dairy brushes and sponges and clean the tunnel out just like scrubbing the ship side or the bulkhead.
Q. Would you use the hose to do the bulkhead?
A. No.
Q. Why not?
A. There is fingerprints, there is dust that won't hose.
Q. Kind of like hosing a car?
A. You can't hose a car.
Q. That's right, you can't hose a car.
Was there anything in the tunnel you couldn't hose down, though?
A. No, sir.
Q. How did the tunnel drain; did it all drain out pretty good?
A. Yes.
Q. How many drains were there?
A. I would have to say two, possibly three, three-inch scupper plugs, they were threaded on T-bars.
Q. Would you do this when you were loaded or unloaded?
A. We would always do it when the boat was light.
Q. When the boat was light?
A. "Light," yes.
Q. Why?
A. No cargo.
Q. Why?
A. Because the boat had a rake and all the water would go to the after drain in the tunnel, all laying in the tunnel, it would all run aft, so the water would drain, otherwise you would be working in it.
Q. Doesn't the boat have a rake when it's loaded?
A. No, not really.
Q. How much of a rake did you have in ballast?
A. In ballast?
Q. Yes, that is when you said you scrubbed the tunnels.
A. If I gave you a number --
Q. Gues.
A. It's strictly a guess, four feet.
Q. So the water in the tunnels would really run?
A. Run right back to the after bulkhead.
Q. How high did you have to --
A. Hose the tunnels?
Q. Yes.
A. It never got two or three inches.

CDR. LOOSMORE: Okay, sir, that is all I have.


CAPT. WILSON: Yes, sir.
EXAMINATION

By Capt. Wilson:

Q  Did you ever wheel on the Fitz when you had weather on your quarter?
A  No, sir.
Q  Never did?
A  No, sir.
Q  Never had any experience in quartering seas?
A  No, sir, not on the Fitz.
Q  When you were wheeling and the mate was getting a position, getting a bearing, how did he check with you to make sure you were on course?
A  He would ask me, "How are you? How's your course?"
Q  What did you say?
A  I'd say, "Half right," "half left," or "On," whichever it was.
Q  And so he would then take it at that time?
A  Right.
Q  You said that the watchman is also the lookout. How did you get ahold of a watchman?
A  I am a short toot on the whistle.
Q  One short toot on the whistle.
You mentioned that you closed the vents in heavy weather, how about, there were vents to the tunnels, also?
A  There were vents in the tunnel.
Q Were they of the same type of vents?
A Same type.
Q Where were they located in relation to the other vents?
A There was one, the forward ones I think were right next to the after vent about the No. 1 tank.
Each tank has two vents, and the forward one was just -- was close to the No. 1 vent, and the after one was close to No. 8.
Q After was close to the after vent of No. 8 or the forward vent for No. 8 tank, do you remember?
A The forward vent.
Q So the after vent for the tunnel was near the forward vent of No. 8 tank?
A Yes.
Q Did any of these vents ever get damaged?
A No, sir.
As far as I know I never seen damaged vents all the time I have been out.
Q Never had trouble on loading or unloading of gear damaging these vents?
A No, sir.
Q You said that the tunnel doors were normally kept open. Were there any times that they closed them?
A Yes, sir.
Q. When was that?
A. We closed them at a lot of the loading docks when
dust would really get too heavy, we would close the
doors to keep the dust out.
Q. So you only had to hose the tunnels, not the whole
boat?
A. Any time you were hosing the tunnels, did you ever
get water through the after tunnel door?
Q. Get that deep? No.
Q. What was near the after tunnel door if you came
out of the tunnel, after tunnel?
A. A ladder going up to the spar deck.
Q. A ladder going up to the spar deck?
A. Stairs.
Q. What about the forward doors of the tunnel, where
did they go?
A. The forward doors went into, where the crew sleeps
one deck down. It's always -- the doors are on the main
deck.
Q. You said that it took approximately five minutes
to launch a boat if you were forward, I mean, that was
your guess that it would be?
A. From the time we started aft, I would say, yes.
Q. That was coming over the main deck rather than
through the tunnels?
That was over the spar deck.

Over the spar deck, I am sorry.

What do you recall about what kind of jackets were in the Fitz, cork or --

They were cork.

They were cork?

When I was there they were cork.

Were there any other jacket lockers aft?

Yes, sir, one on each side.

Do you recall what kind of jackets were in there?

They were cork.

They were cork, also?

Yes, sir.

Was there anything secured or stowed near the jacket lockers aft, any other equipment?

Now, I may be wrong being on several boats, approximately of the same type, but there are usually lube oil barrels on the deck right by the life jackets there.

Whether there were on the Fitz, I don't know.

They were usually stowed aft, approximately in the same position as the life jacket boxes.

In that general area, is there any storage for propane tanks for the galley?

They were on the stack deck.

They were on the stack deck?
A. The next deck up, yes.
Q. Did you ever during the time you were on the Fitzgerald, was the ship ever bothered by blackouts, electrical failures, that type of thing?
A. I have been on boats with blackouts and electrical failures. Now whether it was on the Fitz, I can't honestly say.
Q. Was the Fitz the kind of a boat everybody wanted to get on?
A. The Fitz was a good ship. She was for homesteading.
Q. It was the one that everybody wanted?
A. Right.
Q. All of the best people sought to get on the Fitz?
A. I don't know about the best people, the men with the seniority.
(Laughter.)
Q. Since you have been on several boats including the Fitzgerald, was the Fitzgerald one of the more comfortable boats to be on as far as riding?
A. Yes, sir.
Q. Didn't have much of a wiggle?
A. No.
Q. Had a good cook?
A. Well, it speaks for itself.

CAPT. WILSON: That's all I have.
REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:

Q. Mr. Lindberg, how does seniority, you mentioned seniority, how does that system work?

A. At the end of the season you can ask for a boat of your choice.

Q. Where does seniority come in; is it the person with the most time?

A. They try to please the crew. They try to please the employees by assigning them where they want to go.

Q. Is this seniority with the Union or seniority with Oglebay-Norton Co.?

A. With Oglebay-Norton.

Q. So who hires you? Does Oglebay-Norton hire you or do you come from the Union?

A. I was hired by Oglebay-Norton.

Q. Are you affiliated with any union?

A. United Steelworkers of America.

Q. What do they have to do or do they have anything to do with your employment aboard the Fitzgerald or for Oglebay-Norton Co.?

A. Do I have to go see them to get a job, in other words?

Q. Yes, sir.

A. No, I do not.
Q But you have to be a member of the union in order to work for Oglebay-Norton Co. on their vessels?
A You have 30 days. After 30 days, you become a member of the union.
Q Does the union have a contract?
A We have a contract.
Q Could you describe that there are any special conditions in your union contract pertaining to, let's say, bonuses? Do you get bonuses for working on the boats?
A We do.
Q What do you get bonuses for?
A We get 10 per cent of our wages up until December 20th and after December 20th, 15 per cent.
Q Does everyone get this bonus?
A With over 45 days' service.
Q So if you work over 45 days --
A And then you lay the boat up?
A -- you get 10 per cent up to when?
A December 20th.
Q And after that you get what?
A 15 per cent.
Q Do you get any kind of a bonus for the amount of cargo that the vessel carries?
A No, sir.
Q. Do you carry more or less?
A. It has nothing to do with our wages.
Q. Do you get any kind of bonuses of wages sailing in longer seas during certain months of the year?
A. We have what we call a seniority bonus.
Q. What does that amount to?
A. It runs as high as — it's either $150 or $200 maximum. It depends on your length of service. It starts at $50 and then adds $50 for every few years after that.
Q. Is this monthly or yearly?
A. It is yearly.
Q. Yearly bonuses, and this is strictly for the time that you have been with one company?
A. With Oglebay-Norton, yes, sir.
Q. And with other companies, I guess the Steelworkers also sail with other ships?
A. I would have to assume that.
Q. You don't know from your own knowledge?
A. No, I don't.
Q. Your service has been with Oglebay-Norton Co., I mean, all of your service has been with Oglebay-Norton?
A. Is all my service with Oglebay-Norton?
Q. Yes, sir.
A. I have sailed on one other boat for two months in 1956.
Q. What were the circumstances of that?
A. I got bumped. It was a temporary job.

Since then I have been with Oglebay-Norton.

Q. So it is to the benefit of the seaman to stay with one company; is that a fair statement?
A. It is to the benefit of anybody to stay with one employer, whether you are a seaman or not.

Q. You get bonuses for this?
A. Yes.

Q. How about if you carry certain cargoes where it may be dusty or nasty or difficult to handle, do you get any kind of a bonus for that?
A. Yes.

Q. Well, tell us --
A. Yes, sir; but on the other boats like the Fitzgerald, it applies mostly to self-unloaders and then crane vessels.

Q. Now, would this be carrying taconite?
A. It would be for what they call borings and bug dust, which is powdered coal.

Q. What did you call it?
A. Bug dust. It is not a technical name. That's the name.

Q. Is there any bonus or any special considerations for sailing during, let's say, rough weather months?
A. No, sir.
Q. That's not part of the union agreement?
A. No, sir.
Q. How much do you make a month; what is your monthly base pay?
A. I can give it to you by the hour.
Q. What is it by the hour?
A. $5.63 and my base wage, we have a cost-of-living adjustment on top of that.
Q. And this is for an eight-hour day?
A. For an eight-hour day.
Q. You stand watches, two watches a day; is that right?
A. Yes, sir.
Q. You mentioned three categories, I believe, that you served at. You served as watchman, as wheelsman and as a deckwatch, as I understood you to say?
A. Yes, sir.
Q. What does a watchman do, just briefly?
A. The morning watch.
Q. Well, does he stand four on and eight off?
A. He stands four on and eight off; they all stand four and eight, all watchstanders.
Q. Go ahead. What is the duty of a watchman?
A. It's sort of like a foreman. He gets his orders from the mate as to what maintenance is to be done on the boat and he carries out the mate's wishes to have the work
Q. Do you carry a boatswain on the lake vessels?
A. On our vessel, it does not carry a boatswain. We do not have the title in our company.
Q. So the watchman really does what as boatswain might do on another vessel?
A. And we also have an AB maintenance man.
Q. What does a watchman do? He works during daylight hours; does he also work during maintenance of the vessel, during the night hours or how does that work?
A. We do no maintenance at night.
Q. So what do you do at night as a watchman?
A. You are asked to stay forward and if you go aft, to let somebody know where you are. They have stations that they maintain, cleaning stations that they maintain.
Q. Do you do that at night?
A. We do that at night, and we relieve the wheel.
Q. Swabbing decks and that type of thing?
A. Keeping hallways and things like that clean.
Q. And you say you also relieve the wheel?
A. Yes, sir.
Q. How many watchmen to a normal watch, sir? Is it just one?
A. One watchman.
Q. And one wheelsman?
A. And one wheelsman.

Q. Who else is on watch?

A. And the forward end, the mate. Three men are on watch.

Q. The mate, the wheelsman and the watchman?

A. Yes, sir.

Q. Does the watchman stand lookout duties?

A. Yes, sir.

Q. In your testimony you indicated that you would be called on to stand lookout duties on the river, but not on the lake.

A. If there is fog on the lake, you will be called.

Q. You would be called?

A. Yes, sir.

Normally on a nice, clear day, no.

Q. Do you and the wheelsman stand equal amount of time at the wheel? Do you split the wheel watch up, or how does that work out?

A. The wheelsman works four and eight.

Q. I realize that, but does the wheelsman steer for four hours?

A. True. You don't leave the wheelhouse unless you are properly relieved, unless the watchman comes up to relieve you.

Q. Yes, I appreciate that, but does the wheelsman steer the ship all the four hours that he is on?
A: By hand?
Q: Yes.
A: No, sir.
Q: Is there a gyro pilot on there?
A: The gyro pilot is used on the lakes, not on the river.
Q: So the wheelsman is up there with the mate; right?
A: Yes, sir.
Q: When he is on gyro pilot, what does he do; anything?
A: Just keeps a check on his courses.
Q: Does he do any maintenance?
A: No, sir.
Q: Just checks the courses?
A: Yes, sir.
Q: A little lookout duties, maybe?
A: I beg your pardon?
Q: A little lookout duties, maybe?
A: The wheelsman?
Q: Yes, sir.
A: No, sir; no.
Q: And he really gets busy when you start entering the river, right?
A: That's when we start earning our money, yes, sir.
Q: Does the wheelsman stand the whole -- let's say when you are on gyro, do you relieve the wheelsman for any reason?
A. As watchman?
Q. As watchman.
A. Watchman, yes.
Q. What do you relieve him for?
A. Coffee.
Q. Where does he go to get coffee?
A. Sometimes he goes aft, sometimes, and coffee is available in the wheelhouse at all times.
Q. Is this standard on lake vessels; is this standard on lake vessels?
A. I would have to say yes.
Q. How about in the river; do you spell the wheelsman in the river?
A. Yes. May I say something right now? When I watched on the Fitzgerald last year, it was the first that I had watched in probably 10 years. I had wheeled for 10 years previous to that, when I went watching on the Fitz.
Q. But you would wheel for the whole four hours?
A. As watchman?
Q. No, as wheelsman.
A. As a wheelsman, yes, sir.
Q. Whether you were on gyro pilot or hand steering, you wheeled for four hours the whole watch?
A. Yes, sir. Wheeling is your duty. You don't do anything else but wheel the boat.
Q. But I want to know, did you do this for four hours or three hours or what?
A. Four hours.
Q. And you are relieved for coffee; how long is the coffee relief, usually?
A. We are allowed 15 minutes but we don't always get it as a wheelsman. Wheelmen don't always get relief.
Q. Crossing the lake, and you are on gyro pilot, I am talking now from your experience on the Fitzgerald as a wheelsman --
A. Yes, sir.
Q. -- going along, the state of the weather, does that have anything to do with whether you are on gyro pilot or hand steering?
A. Yes, sir.
Q. In the open lake?
A. Yes, sir; sometimes we have to put it on hand.
Q. When do you do that?
A. When?
Q. When, yes? Would you take her off of the automatic and go to hand steering?
A. Yes, sir, we would do that. There could be an unfavorable wind that would try to veer the boat one way or the other.
Q. Is a head wind, would you consider that unfavorable?
A. A head wind is a good wind.
Q. How about abeam?
A. Abeam or quartering.
Q. Would the wind have to blow a certain velocity for you to go onto hand steering?
A. No. It is more the condition of the sea than the wind. You could still have a sea and run.
Q. You are talking about the direction from which the sea is coming?
A. True.
Q. What direction would it be coming from that you would put her on hand steering?
A. In either abeam or a quartering sea.
Q. Does it make any difference how high the sea is whether she is on hand steering or automatic steering?
A. Yes, sir.
Q. When would you shift from automatic to hand steering because of sea height?
A. You wouldn't do it at all times. Sometimes it would ride and sometimes it wouldn't.
Q. What do you mean it would ride?
A. Sometimes the gyro would carry it in a sea.
Q. Would you shift because the gyro wasn't able to handle the ship properly? There was too much lag or something?
When it would start ticking over a degree, I put her on hand. I can only state for myself.

Yes, I appreciate that.

I would put it on hand, if it would start ticking and go over a degree one way or the other, or a degree and a half, and then I would put it on hand. I still do.

Would you do that on your own or would you consult with the master or the mate on that?

It happens both ways. I have put it on my own. We could put it on hand any time we want in the lake and we do that to keep in practice.

It is your testimony then that the gyro is able to keep the ship’s head wind a degree on either side?

Within a degree or a degree and a half.

On either side?

On either side.

If it gets off a degree, you start thinking about shifting to hand steering?

Yes, sir.

And it would be the wind, the direction of the wind, the strength of the wind, sea conditions?

Yes, sir.

That would cause it to swerve off more than a degree or a degree and a half and then you would shift to normally hand steering?
A. Yes, sir, and I would say in any heavy weather or
strong head wind, it would probably be on hand.
Q. Well, going along, the mate has taken some fixes
with his radar and he asks you to sing out when you are on.
Is that the way it is done?
A. Yes, sir.
Q. And you tell him you are a half a degree to the right
or something like that?
A. Yes, sir.
Q. Does he give you a mark when he is taking his
bearing? Is that the normal procedure?
A. If it would be hanging a half one way or another,
he would move his bearing board for his curser on the radar
to compensate for that.
Q. How would he know it was a half degree off?
A. I would tell him; I would inform him. He keeps
saying, "How are you? How are you?" or "How is your course?"
Q. And you keep singing out?
A. Yes, sir. They don't all say the same thing.
Q. What kind of a steering ship was the Fitzgerald?
A. It was an excellent steering ship.
Q. Light condition?
A. Yes.
Q. In ballast, very good?
A. Either way.
Q. Did you ever have any occasion to handle the wheel when the Fitzgerald was passing over shoal water or close to shoal water?
A. Shoal water?
Q. Yes.
A. In the lake?
Q. Yes, in the lake.
A. No.
Q. Would you know where the shoal waters or the shoal water spots were?
A. Would I know where shoal water was?
Q. Yes.
A. I know where most of them are.
Q. Do you recall the Fitzgerald passing these shoal areas from time to time?
A. No, sir.
Q. Well, we have had testimony before the board, Mr. Lindberg, and you are a wheelsman, so you are probably in a good position to tell us, and the testimony is that as the ship is proceeding along and it comes to an area of shoal water, the ship tends to either smell the bank or some people call it undertow and you have to be careful, and I was wondering what your experiences were along this line.
A. This is true, but on Lake Superior and Lake Huron,
that doesn't occur. Now, when we get below Whitefish
Bay at Parisienne Island, we put it on hand due to the
fact that we are going in shallow water all the way
up to Detour, past Detour.
Q. I am not primarily talking about the Fitzgerald.
Do you recall how she reacted, let's say if you had shoal
water off the starboard side? Could you tell us anything
about that?
A. You mean you have your shallow water on the starboard
side?
Q. Shallow water on the starboard side.
A. On the starboard side, when you are meeting other
vessels in the river and your shallow water is strictly
-- and we can say also in the channels, and all boats
have a tendency to suck a bank if they get too close.
Q. If you get over toward that bank?
A. Yes.
Q. Can you recall how much wheel you would have to put
onto the rudder in order to keep her, or check her from
going into the bank?
A. No, sir.
Q. Five degrees?
A. It would vary. It would vary.
Q. Vary on what? The speed of the ship or what?
A. The speed of the ship and how close you were to the
bank, to the buoys.

Q. How shallow the water was, you mean?
A. True.

Q. What does the AB deckwatch do?
A. Right now he doesn't do anything. His job was
eliminated on your straight deckers, but he is under the
watchman. He is next under the watchman to carry out
the duties of the mate, if the watchman has something
else assigned to him.

Q. He stands watches, too?
A. He stands watches.

Q. But is it your testimony that now they don't have
any of these AB deckwatches?
A. Not on the bulk freighters, on the Fitz; some of the
self-unloaders still carry them.

Q. Do seamen, unlicensed people sailing on the lakes,
get a bonus because it's November, December, the rough
time of the year?
A. Because of the time of the year, no; just December
20th is the day that the bonus changes.

Q. But you indicated that was a seniority type of bonus?
A. No.

Q. No?
A. That is a wage bonus.

Q. Wage bonus?
A bonus on your wages.

But you get 10 per cent all year long?

Until December the 20th.

Then it goes up to 15?

15 per cent.

Who hires you?

I was hired by Oglebay-Norton.

Did anybody at Oglebay-Norton hire you or did you go to a personnel department?

I filled out an application at the personnel office.

Each year?

No, sir; I am called back every year.

And how do you know what ship you are going to be on?

They notify me.

By mail or how?

By phone.

It used to be by telegram but it's all done by telephone.

This is prior to the season?

Yes.

You pretty well get on one ship, you stay on that ship?

As a rule I fit out one and lay it out, yes, sir.

Do you know if during the last time you were on the Fitzgerald, that was in the '74 season, if there
were any hatches that were warped or damaged?
A. I do not recall any.
I don't recall any being damaged, no, while I was there.

Q. Could you describe the procedure for putting the hatch covers themselves on? How does that work out?
A. They are laying flush on the deck and in some places there is one stacked on top of the other.
You have a motorized hatch crane that is run by the watchman or the AB maintenance man and the two deckhands are with him. They will put the hooks in and it is picked up by a winch and picked up to the height it will to clear the coamings and set down onto the hatches and then they are, the corners have holes and they are pinned, to line up so the clamps are tight and the clamps are secured.

Q. It has holes?
A. Holes.

Q. Drift pins?
A. A drift pin.

Q. It slips right on into place?
A. Yes, sir.

Q. Does it have a gasket or what was the situation?
A. Some have rubber gaskets and some have, it's a fiber, I can't think of the word, and I don't remember which
the Fitz had.

Q. Did you change the gasket during the season or after the season?

A. I never changed a gasket on a hatch.

Q. When are they changed if you know?

A. I can't say. I have never seen a gasket changed on the hatch.

Q. Do you check their condition before you put a hatch on a hatch coaming?

A. Do we get underneath and look at them?

Q. Yes, sir.

A. No, sir.

Q. Do you make any kind of inspection?

A. No, sir.

Q. Does the mate do it?

A. No, sir.

Q. How do you know it's in good condition?

A. You can tell when the clamps are on, the hatch is down, it stays a uniform distance between the coaming and the bottom of the hatch.

Q. That is the way you tell?

A. That's the way we can tell, but you also tell by the hot cargo out of Silver Bay if there is a leak you will get steam.

Q. The hot ore coming up?
A. Any time there is a warp in a hatch, it is repaired.
Q. Do you recall if any of the hatches on the Fitzgerald during the '74 season were warped?
A. No, sir, none were.
Q. Any of them repaired that you can recall?
A. I do not recall.
Q. Do you recall this phenomenon of the steam from the hot pellets, do you recall seeing any steam escape around --
A. No, sir.
Q. The outside temperature would have to be cold or moist or something?
A. You can get steam from the pellets in the middle of the summer.
Q. You do?
A. (Nods head.)
Q. Are the pellets wet or what?
A. They're hot and damp. You only get hot pellets when you load out of the mill.
Q. Would that be Silver Bay?
A. Yes, sir.
Q. Is that the only place?
A. All the others, the pellets are cold.
Q. How hot are they?
A. I have no way of knowing.
Q. Could you hold them in your hand do you think?
A. Yes, sir.
Q. On the vents, the circular vents going down with the mushroom caps going to the ballast tanks, could you unscrew them all the way to perform the maintenance on the thread or what was the detail?
A. They would have to come all the way off.
Q. Could they screw all the way off?
A. Not without taking a locking device off.
Q. What does that consist of?
A. It was a stud. I would say a three-eighths stud with a locking bracket on it that they couldn't come all the way off.
Q. Then was this sort of a preventer on there?
A. Yes, sir.
Q. Were all these preventers in place or were some missing on the Fitzgerald when you were on there?
A. When I was there they were all there.
Q. Would you say you looked at all these vents on the Fitzgerald during the course of the season?
A. Yes, sir, I would say I had done all the vents.
Q. Personally?
A. Personally.
Q. I was interested in your comments about the inflatable life raft and we have many people testify, and of course,
I have not seen any of those life rafts inflated; would it be a fair statement to say that the only time you saw one inflated is when it accidentally opened up?

A. Yes, sir.

Q. Did you ever see any motion pictures on how the inflatable life raft operated?

A. Yes.

Q. When did you see those?

A. They were put aboard the boat.

Q. Excuse me?

A. When the inflatables first came on the boats, there was a projector and film sent aboard the boat on the operation of the inflatable life rafts.

Q. What year was that?

A. I don't know, three years, four years. I don't know.

Q. Three or four years ago?

A. Yes, sir.

Q. Do you recall, have you seen it since that time?

A. Have I seen the movie since that time?

Q. Since that time.

A. Yes, sir; they have been brought aboard.

Q. How many times have you personally viewed that movie?

A. I would say three.

Q. When was the last time?

A. I am trying to think; I would say on the Reserve in

Q  Did you ever see it while you were on the Fitzgerald?
A   I did not see it on the Fitzgerald.

Q  Do they have a safety man that goes around showing
the movies or did the crew show it themselves?
A   The mates showed these particular films.

Q  Do you think that you can inflate one of those life
rafts in an emergency if you had to?
A   Yes, sir.

Q  Have you ever been in one of them under any kind of
conditions?
A   I have never been in a life raft. I have seen them.
That is it.

Q  Do you know what kind of equipment is inside of it?
A   The equipment I don't recall, whether there was a
knife and bailer in there or not; I don't recall.

Q  Was there any kind of placard on the Fitzgerald to
show how to inflate the life rafts?
A   There were at least three placards.

Q  What did the placard show?
A   It started out at that time, it had an automatic
releasing gear on it, not a thermostat.

Q  Hydrostatic?
A   A hydrostatic, correct; it started from there and
went step by step on.
If you had the chance to throw it over, but the
hydrostatic would take over after it got 15 to 25 feet.

Q  Suppose you wanted to launch it, how would you
launch it?
A  If I had a chance, I would throw it over.

Now, the hydrostatics are gone. They are free floating
now.

Q  Let's say you were on deck, you wanted to launch one.
Can you describe just quickly how you would launch it
for me?
A  Just throw it over the side and pull the metal painter.

Q  And it would self-inflate?
A  Yes, sir.

Q  How would you get into the raft?
A  The only way to get into the raft is jump.

Q  Jump into the raft or jump alongside to get in?
How would you do it?
A  The canopy would break your fall but I would probably
go to the water.

Q  Do you recall what kind of releasing gear the boats
had, on the Fitzgerald?
A  The lifeboats?
Q  Yes, sir, lifeboats.
A  The manufacturer. I don't know but there was a trip
lever approximately at the center of the boats which opened
the swivels on the ends.

Q. Would it release the locks?
A. Yes, sir.

Q. Do you recall what kind of falls the vessel had?
A. They were radial.

Q. I beg your pardon?
A. Crank davits.

Q. Did both falls themselves -- what were they made of?
A. Wire rope on an electric winch.

Q. On an electric winch.

You are a lifeboat man, too, are you?
A. Yes, sir.

Q. Did you qualify when you got your AB certificate?
A. Yes, sir.

Q. Where did you get it?
A. I got my AB in Toledo.

Q. Did you take the lifeboat from there?
A. I did not get a steamboat lifeboat; they had a smaller boat on davits there at the station.

Q. A little mockup or something?
A. A rowboat is what it was.

Q. You had to give the commands?
A. Yes, sir, you had to start from scratch.

Q. Did you have any problem launching one of the boats on the Fitzgerald?
A: Would I have any problems?
Q: Yes, sir.
A: No, sir.
Q: Would you take charge and do it yourself?
A: Yes, sir.
Q: How long do you think it would take?
A: From being at the station?
Q: Being at the station and starting loaded with full capacity.
A: From the time of chaining the boat out over the side with all the covers and everything off?
Q: No, covers are on.
A: Covers on: Two, two and a half minutes to get everything stripped. If I am at the boat, maybe two minutes.
Q: Over the side into the water?
A: Get it into the water.
Q: Would you say the Fitzgerald was a good riding ship?
A: Yes, sir.
Q: Do you and the crew, or any time that you were on it, did you ever have any conversations about the behavior in heavy seaway?
A: I have been on it.
Q: Did you or any of the crew ever tell you that it was excessive?
A: Excessive?
Q: Yes, sir.
A: No, sir.
Q: Vibrations?
A: No.
Q: Springing?
A: Working (indicating)?
    We usually say a boat is working when it's going like that (indicating).
Q: Excessive? No.
Q: In relation to the other vessels would you say it was the same or more or less?
A: I would say about the same.
Q: The same?
A: (Nods head.)
Q: How about the ballast tanks, did you ever have anything to do with a ballast tank cleaning?
A: I have cleaned the ballasts. I have helped clean the ballasts.
Q: Do you have to go into the ballast tanks?
A: Yes, sir.
Q: Is that to remove the mud?
A: Remove the mud.
Q: Well, when did you do it when you were on the Fitzgerald?
A: Last year we did it.
Q. All the tanks?
A. I am pretty sure all the tanks were done last year.
Q. You did this under way?
A. Under way.
Q. Light or loaded?
A. Light.
Q. Light. Was there a lot of mud down there?
A. No, sir.
Last year, no.
Q. Say, three or four inches or less?
A. You can't say.
I can't give a general number.
Q. How deep was the mud?
A. I can't give you any more than a general number because there would be more mud aft than forward.
Q. And you are talking about the after tanks and you are talking about the ballast tanks?
A. Yes.
Q. How many ballast tanks are on the Fitzgerald?
A. We hosed eight but No. 9 the engine room used, No. 9.
Q. Is that eight port and starboard?
A. It is.

CAPT. ZABINSKI: That's all.
REAR ADMIRAL BARROW: Mr. Lindberg, in any of the duties that you have ever had here as
an AB wheelsman or watchman, has any of your work involved work on the boats themselves?

THE WITNESS: On the boats themselves?

EXAMINATION

By Rear Admiral Barrow:

Q. Yes, sir.
A. Yes; sir.

Q. What kinds of work have you done on the boats?
A. Painting the duckboards and all, scraped and painted.

Q. How often was that done?
A. I don't know if I did it on the Fitzgerald or not. I would say every two years; the outside is painted every year but the inside I would say every two years, maybe three.

Q. Every two years or so?
A. It's not a steady routine, I mean, if it needs to be done, it looks like there is chipping and scaling.

Q. In the period of time that you were on the Fitzgerald here in 1974 and the earlier period, do you recall what routine work of any kind on the boat was performed?
A. No, sir, I do not remember.

Q. During the last period of time that you were on there which I think was the fitout until August or September, do you recall any specific work that was done
on the boat?
A. Well, I know everything has come out of the boats and scrubbed. If it needed painted or repaired, it was done.
Q. You say you know that. When would that have been done?
A. Well, before I got off.
Q. Once a month, once every two months, et cetera?
A. No, sir, not once a month; maybe once during the time I was there.
Q. What was done during that?
A. All equipment is taken out.
Q. How about the tanks themselves?
A. The tanks, no, no.
Q. The equipment for the boats?
A. The equipment for the boats, the duckboard, floor-boards are taken up.
Q. How often were fire and boat drills carried out when you were on the Fitzgerald?
A. They weren't.
Q. They were not.
I think you stated at the fitout in April?
A. Fitout, there was a fire and boat drill.
Q. But no other drills other than that?
A. No, sir.
Q: No fire drills, no boat drills?
A: No, sir.
Q: Have you ever seen one of these lifeboats in the water on the lakes?
A: Under way?
Q: Under way.
A: No, sir.
Q: Are you familiar with the radio equipment in the wheelhouse on the Fitzgerald?
A: Yes, sir.
Q: What kinds of equipment were there?
A: We had AM and FM phones.
Whether the new FM's were put in before I got off, I don't remember. I think there were two new FM phones in the wheelhouse and the AM phone.
Q: Were they powered forward or aft?
A: No, sir, they were powered aft with batteries, battery chargers and batteries for emergency service.
Q: What other kinds of electronic gear was aboard?
A: DF and the radar.
Q: Was there a Fathometer?
A: Pardon?
Q: A Fathometer?
A: A Fathometer.
Q: Had you ever used a lead?
A. I had used a lead.

Q. Have you ever used one on the Fitzgerald?

A. No, sir.

Q. You have indicated during the loading process that
one of your duties has been the moving of the ship during
loading?

A. Yes, sir.

Q. What did that involve?

A. Just changes of the mooring wires from one spar
to another and the shift of the boat is done by changing
the mooring.

Q. Did any of your duties involve taking the draft
marks, getting the draft marks?

A. It wasn't my duty but I have read the draft marks.

They say, "Go see what it is aft."

Q. "What was the occasion, loading?

A. While loading.

Q. How did you do that?

A. I went down on the dock and looked at the rudder.

Q. Did you also have a duty during the unloading?

A. Involving what?

Q. A duty involved with the unloading process?

A. Watch the winches and boarding ladders.

Q. Same thing?

A. Yes.
Q. Do you recall during this last period that you were on the Fitzgerald any damages that were taken by the Fitzgerald itself?

A. There were no damages last year at all.

Q. No period in which the ship banged into a pier or any of that sort of thing?

A. No, sir.

Q. Do you recall any damages during the loading process itself from the chutes or --

A. No.

Q. Have you ever been on the Fitzgerald during the process called tipping ship?

A. Tipping, yes.

I can't say yes. I have been on boats where there was tipping. Whether it was the Fitzgerald that was tipped, I don't remember.

Q. You don't recall.

Counsel?

MR. MURPHY: Thank you.

REAR ADMIRAL BARROW: Off the record momentarily.

(Discussion off the record.)

MR. MURPHY: No questions, Mr. Chairman.

REAR ADMIRAL BARROW: By the Board?
CDR. LOOMORE: Yes, sir.

EXAMINATION

By Cdr. Loosmore:

Q. Mr. Lindberg, do you have a Coast Guard license?
A. A license, no, sir.

Q. Do you hold a license?
A. No, sir.

Q. At any of the training that you have received on survival, abandon ship, survival and so forth, did anybody ever talk about survival suits?
A. Everybody has talked about survival suits.

Q. What do they say about survival suits?
A. If they had one that worked, they'd be fine.

Q. Were any on board the ships that you have been on?
A. No, sir.

Q. Do you think they ought to be?
A. I think if they would help, yes; anything that would help us should be aboard the boat.

Q. Do you feel that the survival equipment that you have right now is adequate?
A. You are the guy that is going to sea out there.

Q. If I go over the side in the winter, no, I don't have any survival gear at all. No.

Q. You think if you went over the side in the winter --
A. You'd get damn cold.
Q  How long do you think you'd last?
A  In Lake Superior in cold weather?
Q  In Lake Superior.
A  All I know is what I read, four minutes up to an
    hour, hour and a half.
    I don't know.
Q  Do you recall where you read that?
A  It was lately and what I read had to do with the
    structure of a person, his body, the fatty tissue, what
    clothes he had on at the time, and I do not recall, it's
    been recently but they always said it would be five
    minutes, that is, until I read this article.
Q  What did the article say?
A  An hour if you were really an obese person and
    stayed motionless and used no strength whatsoever.
Q  You said that a big laker, I don't think you were
    talking specifically about the Fitzgerald, would never
    have a problem with shoal in Lake Superior. You said
    it doesn't happen in Lake Superior but there are shoals
    there?
A  There are shoals but the courses are so far away
    from them you don't get close to them.
Q  You said you were familiar with most of the shoals
    in Lake Superior.
    Have you ever been on a ship between Caribou and
Michipicoten?

A. Yes, sir.

Q. When was this?

A. There is what they call the Six Fathoms over Caribou and Superior Shoals farther northwest.

Q. Where is Six Fathom, which direction from Caribou?

A. Northwest.

Q. Northwest -- how far, right next to Caribou?

A. I do not know, a few miles -- a mile, two miles, three miles.

I don't know. I just know it's there.

Q. Did you ever overhear or were you in a conversation with Capt. McSorley talking about those shoals there?

A. No, sir.

CDR. LOOSMORE: Sir.


EXAMINATION

By Capt. Wilson:

Q. We were talking about tunnel doors before.

Did you ever have trouble closing those tunnel doors?

A. Never.

Q. They worked easily?

A. Yes, sir.

Q. You said the normal practice was to leave them open.

Didn't they slam when the vessel pitched?
A. They are hooked.

Q. You hook them open?

A. They are watertight doors.

Q. At any of the time that you were on the Fitzgerald
wheeling, did you ever have any sort of list on the
vessel? Did you get any experience wheeling when the
vessel listed?

A. I have never been on a boat with a great list.

Q. What would you consider a great list; how much?

A. Over three inches and I do not recall a three-inch
list.

Q. Have you ever sailed on any of the self-unloaders?

A. I have been on a self-unloader.

Q. Don't they have more than a three-inch list?

A. While loading, but it's taken out, the list is taken
out.

Q. How much do you get when you are loading, generally
how much of a list?

I had a little trouble coming to grips with list.

A. Only on self-unloaders.

Q. Self-unloaders?

A. Well, maybe six inches.

Q. Maybe six inches?

A. That is controlled with a boom and also the loading
equipment. It's tried to be kept level and you are doing
your damn best to keep it level.

Q. But on the Fitz do you recall an inclinometer?
A. It was a clock, a round clock that was in inches.
   It was on the forward bulkhead, by the forward winches.
Q. And it was in what, you say?
A. It was by the winches on the after part of the forward house. I am pretty sure of this. If I recall correctly, that is where it was.
Q. You never saw that where it had any indication of a list or roll?
A. No, sir. That is only on when you are loading or unloading and then it is locked.
Q. Again, when you were on the Fitzgerald, did any of your jobs include sounding the tanks when you were loading or offloading or during that evolution?
A. Last year?
Q. Yes.
A. No.
Q. How about previously?
A. Previously, yes.
Q. On the boat, was it a common practice on there, the best you remember on the Fitzgerald, that the boat gripes were always on, or the boats were always well secured?
A. The boats were well secured.
Q. Is that included in anyone's duties to check the
boats when you had a little weather or at any time?
A. The gripes are noticeable. If the gripes are loose, you tighten them. When you go by, you can tell a loose gripe and if they are loose, you tighten them up, but they didn't vibrate loose.

Q. Did anyone have the job of checking the gripes, or was this just something that you did automatically?
A. Was something that was there that was done.

Q. Were you ever at any time that you were on the Fitz, were you ever there when she got stuck in the mud when she was loading or offloading?
A. Loading, no. When we were going into the Toledo Harbor, she would be on the bottom.

Q. She would be on the bottom when you were offloading?
A. When we were making the dock, she would be on the bottom.

Q. What do you mean "on the bottom when you are making the dock"?
A. The water at the dock is not deep enough, so the bottom of the boat is on the bottom.

Q. How do you get it on the dock?
A. With the engine. You just push.

Q. You just push?
A. Yes, it's like a cast on an arm, supporting the whole boat.
Q. It must take a lot of horse power?
A. 7500.
Q. It takes it all, does it?
A. It doesn't take it all.

CAPT. WILSON: That's all.
REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:

Q. Mr. Lindberg, just to review your testimony about fire and boat drills, what was your testimony about fire and boat drills on the Fitzgerald? You said you didn't hold any after the spring fitout. Is that your testimony?
A. That is my testimony.
Q. You have been through the drills. Do you know what the requirements are for the fire and boat drill?
A. Yes, sir.
Q. What are they?
A. Once every week.
Q. Is it your testimony that they were not held once every week?
A. Yes, sir.
Q. And that there were none held after the time of fitout?
A. They were not held.
Q. Is there any explanation why they were not held?
No, sir, I have no explanation.

Did you ever question this?

I beg your pardon?

Did you ever question this procedure?

No, sir.

Do you have a grievance committee, a union grievance committee?

Yes, sir.

Was that ever brought up during any of your meetings?

No, sir.

Why not? Do you know why not?

Do I know why not?

Yes.

No.

Did you ever personally think about bringing it up?

I have personally thought about it.

But you never did anything?

No.

Why are those drills required? Do you think they are desirable or undesirable?

They are required to exercise the crew in their duties.

Mr. Lindberg, how many of the people were lost on the Fitzgerald that you personally knew?

I personally knew?
Q. Yes.
A. 22.
Q. Only two?
A. 22.
Q. 22?
A. Yes.
Q. What do you think went wrong, why we haven't recovered any people to date? What in your opinion went wrong?
   I realize it is an opinion that I am asking of you.
You have been on this ship.
A. Why nobody was found?
Q. Yes.
A. It happened so damn fast that they didn't have a chance to go on deck.
Q. What do you think could have gone wrong?
A. I don't know.
Q. Maybe she capsized or what? What happened so suddenly that could have happened so suddenly that no one, not a soul was recovered?
A. In my opinion, I think she got in the trough and rolled. That is strictly an opinion.
Q. I see. Was there anything unique about the deckhouse doors or procedures that they used, keeping them closed in rough weather or cold weather, that may have contributed
to trapping people within the hull, let's say?
A. In cold weather, yes, sir, they were always closed; but the doors, if I remember right, they didn't have to be dogged because they were tight enough with the gasket and they wouldn't have been dogged.

Q. Are these wooden doors?
A. No, steel doors.

Q. Steel doors?
A. Steel doors.

Q. Free to operate?
A. Yes, sir.

Q. You have gone through them many times, I am sure.
A. Yes, sir.

Q. There are various doors, and did you have any problem opening or closing them?
A. No, sir.

Q. You've got a lot of experience on the lakes on a lot of vessels, and we have had testimony before the Board about launching lifeboats in weather conditions that existed on the Fitzgerald when it went down, and the testimony that we have, Mr. Lindberg, is that the seas were anywhere from 20 to 30 feet high, the wind ranged anywhere from 50 to 70 knots, and some vessels said that they were taking water up almost over the boat deck, and given those circumstances, your experiences
as a seaman launching boats, could you launch a boat
under these various conditions?

Q. Could I launch them?
A. No, sir.
Q. Why not?
A. In order to -- beginning with after you got it off,
I think it would probably be smashed before it got to
the water line. If it is rolling at all, you are not
going to get a boat over.

Q. Well, out in the open ocean they have launched boats
under various sea conditions, similar conditions.
Is there anything difficult -- have you sailed saltwater
at all?
A. No, sir.
Q. Is there anything about the state of the sea?
Does it build up very much on the lakes, rather than sort
of, you know, spread out over the area, where it might
affect the inability of the launching of a boat in that
kind of a seaway?

A. In my own opinion, you cannot launch a boat where
there is any great sea at all. It is going to be swamped.
Q. The water is just going to pour into the boat?
A. Pour into the boat?
Q. Yes, the water is just going to pour into it, the
sea, is it just going to pour into it?

A. Yes, sir.

Q. If you had to abandon ship, with the conditions that I have given you, 50 to 70 knot winds, 20 to 30 foot seas, what piece of equipment would you use?

A. I would go right for the life raft, the inflatable life raft. Before that, we had floats. I would have gone for that.

Q. Do you think that is your best chance?

A. You are in the elements on a float, but I am more for that than I am a boat.

Q. How would you handle -- would you just inflate the inflatable life raft over the side and jump into it, like you indicated before, or would you just use a different procedure in rough seaway?

A. I can't honestly answer that unless I was in the circumstances. I don't know what I would do. I have to be frank.

Q. Just haven't thought about it?

A. I have thought about it. Whether it would be best to launch it on deck and get in it or whether it would be best to get it over the side and go for it out there, you just have to take the best alternative and do the best thing you can at the time.

CAPT. ZABINSKI: Thank you. That's
EXAMINATION

By Rear Admiral Barrow:

Q. Mr. Lindberg, what ship have you sailed this year?
A. The Armco and the J. Burton Ayers.

Q. Are they both by Oglebay-Norton?
A. Yes, sir, I have always sailed with Oglebay-Norton.

Q. Were lifeboat and fire drills carried out weekly on those ships?
A. Yes, sir.

Q. What do they do on those particular drills?
A. We have a fire forward and a fire aft and an abandon ship drill where we crank the boats out, weather permitting.

If the weather is inclement, we still hold the boat drills and have a fire drill and the crew is talked to, briefed in their duties.

Q. On other ships that you have sailed on on the lakes during these 19 years, has it been characteristic that fire and boat drills were held weekly?
A. Yes, sir.

Q. But not on the Fitzgerald?
A. No, sir.

REAR ADMIRAL BARROW: Counsel?

MR. MURPHY: No questions.
REAR ADMIRAL BARROW: By the Board?

CDR. LOOSMORE: No, sir.

REAR ADMIRAL BARROW: Thank you very much, Mr. Lindberg.

We have asked you a number of questions here about your knowledge of the Fitzgerald and the people on it. Always before we finish, we would like to give you the opportunity to bring forward any additional testimony, any additional knowledge that you have regarding this particular vessel, which you think might be of assistance to us in achieving our purposes in this investigation.

I will give you that opportunity now.

THE WITNESS: The only thing that I know, the captain was competent and it was a good boat and a good crew.

REAR ADMIRAL BARROW: Thank you very much. You are excused. You are cautioned not to discuss your testimony with anyone other than counsel or until the conclusion of this Marine Board of Investigation.

(Witness excused.)

REAR ADMIRAL BARROW: We will take a five-minute recess.

(Recess had.)
REAR ADMIRAL BARROW: Let the record show that we reconvened at 4:28 and counselor for Oglebay-Norton Co. present.

Cdr. Loosmore, continue, please.

CDR. LOOSMORE: Would you stand, please? Would you raise your right hand?

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THOMAS E. GARCIA was called as a witness, and having been first duly sworn, testified as follows:

EXAMINATION

By Cdr. Loosmore:

Q. Would you be seated, please.

Would you please state your name, address and occupation?

A. Thomas E. Garcia, 238 West Main Road, Conneaut, Ohio, boatswain, seaman.

REAR ADMIRAL BARROW: Mr. Garcia, our purpose here is to investigate into the sinking of the SS Edmund Fitzgerald, which occurred on the 10th of November, 1975, and, as you are aware, we recovered no one from that. There are no survivors at this time and indeed we have found no bodies
up until this point in time.

We have investigated and talked with everyone that we know who has had any knowledge of the vessel itself from past employment on it or anybody that knows anything about the captain who was master of the vessel.

I will ask you to respond as clearly and concisely as you can to the questions put to you by this Board and by counselor and that you speak slowly and distinctly.

We are trying to take a verbatim record of this. Thank you.

THE WITNESS: Yes, sir.

By Cdr. Loosmore:

Q. Mr. Garcia, do you hold a Coast Guard license or Merchant Mariner's document?

A. Yes, sir.

Q. Which is it?

A. I hold a document.

Q. Do you have that document with you?

A. Yes, sir.

Q. May I see it?

(Document handed to Cdr. Loosmore.)

Q. I have a U. S. Merchant Mariner's document issued to Thomas Edward Garcia, 283467817, issued to Cleveland,
Ohio, 22 March 74, Able Seaman in any waters, 12 months,
Great Lakes 18 months, wiper, steward’s department,
food handling.
A. Excuse me, sir. On that 18 months is any waters
besides the Great Lakes.

CAPT. ZABINSKI: You are an able
seaman in any waters for 12 months.

THE WITNESS: Yes, sir.

CAPT. ZABINSKI: And the Great Lakes,
18 months?

THE WITNESS: Yes, sir.

(Document handed to witness.)

By Cdr. Loosmore:

Q. Let the record show that the document has been re-
turned to Mr. Garcia.

Mr. Garcia, do you hold a license?

A. No, sir.

Q. How long have you held a document of any type?

A. Nine years, sir.

Q. And how long have you been sailing?

A. Nine years, sir, off and on.

Q. How old are you?

A. 27, sir.

Q. How much of your nine years of service has been on
the Great Lakes?
Four years, sir.

And the other five?

College.

Have you ever sailed in the ocean, saltwater?

No, sir.

So, then, that your total experience on the Great Lakes would amount to how much?

Four years, sir.

Four years?

Did any of those four years involve service aboard the Fitzgerald?

Yes, sir.

What were the periods of that service?

December of 1973 to January 1974, the 15th of January, when we got off; and December 28, 1974, to January 28, 1975.

Are those the only periods that you sailed aboard the Fitzgerald?

Yes, sir.

Did you have any opportunity to sail with Capt. McSorley in any other circumstances?

No, sir.

What were your duties while you were on board the Fitzgerald?

1973 to 1974, I was an ordinary deckwatch.
1974 to 1975, I was a boatswain.

Q. What did the duties as boatswain involve?
A. The duties of the boatswain on the Fitzgerald involved at the time when I was there, was to take the orders from the mate, the work orders in the morning, make sure that the deckhands did their regular jobs, sanitary work, and at that time in the wintertime, you did sanitary work and cleaning the rooms up, spotting the rooms down.

When you are making the dock, you would have cables to put out, you heave lines and your hatches are taken off, and general maintenance work.

Q. Was it a watchstanding assignment?
A. No, sir. 8:00 to 4:30, seven days a week.

Q. Did you have any contact with the captain during that time?
A. Just to say hi, and that's about all, sir.

Q. Did you talk with him much?
A. No, sir. He wasn't a man that -- he kept to himself much of the time. You may see him in port when he goes down the ladder to make a phone call, but that's about all, sir.

Q. Do your duties involve anything to do with the wheelhouse?
A. No, sir.
Q. How many times in the months that you were on board between -- in last year's season, were you in the wheelhouse?
A. Just maybe a half a dozen times to check with the first mate on the work details in the morning and then maybe at night about a quarter to 4:00 to tell him what we have progressed, what we have done.
Q. You said your duties involved the taking hatches off?
A. Yes, sir.
Q. What is involved with that?
A. Well, before you make a port, at this time we go out and take your clamps off and then as we -- we never took the hatches off out on the lake in the fall of the year, we always waited until we were in port, tied up, and we took the hatches off as proper standard procedure in the fall of the year.
Q. Where did you go into port during that period of time?
A. Silver Bay on Superior.
   Well, we made one trip into Superior and two trips out of Silver Bay.
Q. Those were to load or unload?
A. To load, sir.
Q. Where did you go in Superior?
A. Eloise Dock.
Q. Eloise Dock, is that chute docks?
A. That is a chute dock, sir.
Q. Were you up on deck during loading?
A. Yes, sir.
Q. Do you think you could describe that sequence to me in a chute dock?
A. My job on a chute dock?
Q. The whole process of loading on a chute dock, what's involved.
A. Well, I am operating the winches at this time to shift the boat when the man orders me, 48 feet astern, 48 feet ahead.
Q. Slow down. We are trying to take this down and I am trying to understand it, both.
A. Okay. As we are shifting to spot the pockets into the hatches there --
Q. All right.
A. All right -- well, he says your distance, you go 48 feet. When he hangs up, you stop your boat, your vessel, and you don't start loading until your vessel is completely stopped with the cable shift ended.
Q. You are in charge of all of the winches?
A. No, I was in charge of the after winches.

There is a wheelsman forward who runs the winches forward, and as the boat is stopped, the chutes come on,
the chutes come down into the hatches.

Q  All at one time or what?
A  One at a time, he puts a run in and as the run is
done, the next chute comes in over another hatch going
up the deck.

Q  Every other hatch?
A  Yes.

Q  You didn't fill every hatch?
A  If you fill every hatch all at once, sir, your boat
will sink.

If you get all that weight at one time, you will
break the back of the ship.

Q  Okay. So let's start from the time you arrived,
you come into a chute dock and you are in ballast?
A  All right, the captain gives the word to the engine
man, we will pump out.

As you pump your water out, your boat tends to rise
and then you put the run of ore in. Your ore sinks
the boat and then your water is being pumped out also at
the same time.

Q  Okay. Did you have to be on deck all the time
you were shifting?
A  Yes, sir.

Q  Did you have to be on the deck at all times?
A  Yes, it's my job to run the winches. I can't leave
the winches.

Q. Did you have anything to do while they were making a run with each chute?

A. I don't quite understand you, sir.

Q. You said you'd shift the boat up to a certain position --

A. Yes.

Q. -- spot it under the chute. Is that what you said?

A. Yes.

Q. How long does it take?

A. For a run to go?

Q. Yes, a run.

A. Oh, 10 minutes at the most probably.

Q. So that is one chute or lots of chutes?

A. That's eight chutes. I am not sure but it's usually seven or eight chutes, yes, sir.

Q. Would you move after every run?

A. After the chutes are out of the pockets, the dock boss tells the mate -- excuse me, the mate has a list where the pockets are and we shift 48 feet ahead, 28 feet ahead, and put the second run in.

Q. Is the ship right alongside the dock?

A. Yes, sir, at this time it was. Yes.

Now, it all depends on the wind. If your wind is off the dock, you have a hard time loading. Sometimes
they will not load you if the wind is off the dock, if it's too severe, they will not try to load you.

Q. Why?

A. Well, it's hard.

If you have wind coming off the dock, it's hard to keep the ship to the dock with your cables.

Q. Is there a lot of shifting involved?

A. Yes and no. Sometimes you may go into the ore dock at this time Eloise Dock, it's a mile long from the end of the dock to the fore part of the dock, it's a mile long.

You may spot No. 2 hatch at the last pocket on the ore dock and you may end up finishing at the beginning of the ore dock.

But sometimes if you go in there empty or just set right in each pocket, there is very little shifting involved.

Q. How long does it take to load?

A. It depends on a few things, if the ore is there, or if we have to wait on water to pump out, anywhere from maybe four hours to eight hours to load.

Q. Did you ever run aground in there?

A. No, sir.

Q. There must be plenty of water then.

A. Yes, sir.
Q. Did you ever have to sound it to find out?
A. Yes.
Q. You did take soundings?
A. I have done soundings but not when we were loading.
Q. How did you take the soundings?
A. With a six fathom sounding line and with the line stop down the sounding well.
Q. In the tanks.
Q. Did you ever take a sounding of water around the ship?
A. On the Fitzgerald?
Q. Yes.
A. No, sir.
Q. On any ship?
A. Yes, sir.
Q. On any ship at that dock?
A. No, sir.
Q. Now, once you are finished, do you have to winch yourself back out?
A. Yes, we did, maybe, oh, 96 feet, until the stern gets kicked out a little way and the deckhands go forward, they get aboard the ladder and the old man throws the cables off, the wheelsman throws the cables off and the deckhands throw the cables forward and they come aboard and the captain makes it out with a thruster because
he is clear of the dock.

Q. What do you do during that time?
A. At that time I am putting the hatches on or clamping them down.

Q. Do you ever stop and wait to get all the hatches on before you leave?
A. Oh, yes, in the fall of the year. Yes, we have. But that time we didn't leave until the hatches were all on and securely.

Q. Other times you go ahead and get under way with them not on?
A. Not in the fall of the year.

Q. On the Fitzgerald?
A. No, sir, they were always secured and on before we left the port.

Q. How about the clamps, was it necessary to put all those clamps on?
A. Yes, sir.

Q. How long did that take?
A. Four winches -- we have four winches, three deckhands and myself -- a half hour, sir.

Q. How about the vents, are there vents all over that deck?
A. Yes, sir.

Q. What do you do with them?
A There is no special set pattern for vents to my knowledge.

Q But as boatswain you are in charge of the gear all over the deck?

A Yes, sir.

Q If there had been a change to the vents, you would have known about it?

A Yes, sir, I would have been the one to put them down.

Q Would you guess they were open or closed?

A They were open, sir.

Q How do you close them?

A You turn them, turn them down by hand.

Q How can you tell whether they are open or closed?

A Well, one way that I know, you can stick your hand up underneath the vent and you can feel inside as your hand is up inside and you can reach inside the vent.

Q Can you tell by looking at them?

A Yes, you can.

Q Can you just walk by them and look at them and tell?

A Yes.

Q How?

A Because when they are off you can see the bottom of the thread, the last couple of threads on there, they are higher.
When they are down, they are maybe a foot from the deck, a foot, foot and a half from the deck.

Q. Can you tell, just looking down the deck and seeing whether one is open or one is closed?
A. No, sir, you can't see that.
When I walk down the deck I can look.
Q. This is a photograph, Exhibit 19, of the Fitzgerald which has already been placed in evidence.
Is there a vent that's in that photograph?
A. Yes, sir, right here (indicating).
Q. Can you tell whether the vent is open?
A. She's open, sir.
Q. That's open?
A. Yes.
Q. And the thing right behind it, is that another one?
A. These are air vents.
Q. Two air vents?
A. Yes, sir.
Q. And they are both open?
A. Yes, sir.
Q. Okay. Can you recognize where this photograph was taken?
A. Can you recognize the city behind it?
Q. Cleveland, Ohio.
A. That's Cleveland?
(Witness reexamines exhibit.)

A. Excuse me, it looks like Cleveland but I don't
want to swear to that. No, I couldn't say.

Q. Okay. Were you ever on the Fitzgerald when they
tipped ships?

A. No, sir.

Q. Does that mean anything to you?

A. No, sir.

Q. Where during this time that you were on the Fitz-
gerald did the vessel offload?

A. Excuse me, sir?

Q. Where did the vessel offload?

A. To unload?

Q. Offload, you say unloaded.

A. Yes.

Q. At Superior and Two Harbors, where did you unload?

A. Cleveland CP Dock here in Cleveland.

Q. Every trip?

A. The trips I was on, yes.

Q. Did you ever unload at Toledo?

A. No, sir.

Q. Did you ever run aground?

A. Excuse me.

Q. Toledo, yes, sir, in 1973 we did.

Q. Were you on the winches during the unloading?
A. No, sir.
    No, I was off at that time on unloading. I was knocked off. When we got to port when the hatches were off, I was done.
Q. When you were at Cleveland, what did you do during unloading?
A. Not a whole lot, sir. I was knocked off.
Q. Did you have to shift during unloading?
A. No, sir, we had a watchman who took care of the ladder and winches at that time.
Q. Okay.

Were you even up on deck during any of those unloadings?
A. No, sir. I was home at the time or up the street, one of the two.
Q. You said you sounded the tanks. What did you do with that information?
A. That information when I sounded the tanks, I have a board, a chalk board with the number of the tanks, port and starboard, and when I sounded the tanks, I take the soundings to the engine room and mark it up on the engine room board down in the engine room. I mark it up, the date and the time I took the soundings.

From there I would go to the pilot house and mark it in the pilot house, the date and time.
Q. Would you do that, how frequently?
A. Once every eight-hour watch in the morning, usually 3:00 o'clock in the afternoon unless the weather was bad on deck and I didn't take them.
Q. I thought you said you didn't have watches.
A. No, I don't stand watches. I work the day shift, 8:30 to 4:30.
Q. You mean an eight-hour watch?
A. An eight-hour day.
Q. On a day when the weather was bad you didn't take them, what did you do with the board; would you just leave yesterday's or would you go down and erase it?
A. They have gauges, mercury gauges, automatic sounding gauges.
   I would check those and if there was water in the tanks, it would show up on the gauges.
Q. Did you sound these tanks when you were loaded as well as in ballast?
A. The only time I sounded them was when they were loading, sir, but that is the only time I sounded the tanks.
Q. What did you do when they were in ballast?
A. Nothing, sir.
Q. How much water was in the tanks when you were loaded?
A. None, sir.
Q. What would you write down on the board?
A. Zero or put a line through the spot where the numbers of the tanks was.
Q. Would you leave it blank?
A. I was taught always to put a line through it or a zero.
Q. Either a line through it or a zero?
A. Yes, sir.
Q. Do you know whose order that was?
A. The first mate's.
Q. Who was the first mate at the time?
A. At that time it was Jack McCarthy but this has been a standing procedure when I was deckwatch on any vessel.

This is what I was taught before.
Q. Was he pretty careful about that?
A. Yes, he was.
Q. Did you know him pretty well?
A. No, I didn't, sir.
Q. When you went down in the engine room, did you compare the soundings with the King gauges?
A. Yes, I did.
Q. Had the King gauges worked?
A. On the Fitzgerald?
A. Yes.
A. They were automatic.
Q. Were they on those?
A. Yes, sir, they were pretty accurate, the King gauges.
Q. Did the engine room keep an eye on those or was that their duty?
A. No, sir, that wasn't their duty. I had nothing to do with the engine room, though.
Q. But you went down and looked at the gauges?
A. Yes, sir.
Q. Weren't they in the engine room?
A. The King gauges?
Q. Yes.
A. Yes.
Q. Did you ever in the time that you were sounding and going down and writing them on the board notice any difference between your soundings and the gauges?
A. No, sir, I didn't.
Q. It's a lot of work to sound them?
A. No, sir.
Q. Didn't it occur to you you might just go and look at the gauges?
A. It occurred to me, sir, but why should I do that. It was my job to take soundings of the tanks.
Q. I didn't mean to imply that you didn't do your job.
Where was your abandon station?

A. My abandon station was No. 1 lifeboat.

Q. What were your duties in launching, if any?

A. At that time attend forward davits and the painters.

Q. And the painters? What did you do with the painter?

A. The painter, first of all the painter was let out to the deckhand on deck and he tied, put it through the chocks onto the bits.

Q. Whereabouts?

A. Aft of No. 20 hatch.

Q. Where was it? Was it in the boat? Where was the painter?

A. In the boat.

Q. In the boat?

A. Yes, sir.

Q. What was the process that you did that?

A. The process was that I took the cover back off of the boat, handed it to the deckhand on the deck, but when I was on there we never held a boat fire drill.

Q. Then how did you know?

A. Because when I was on other ships you had to know these same fire stations.

Q. Did you ever go look at those boats?

A. Yes.

Q. Was the painter in the No. 1 boat?
A. Yes, sir.
Q. Was it attached to the boat?
A. Yes, sir.
Q. How?
A. Through a wooden -- oh, I can't explain it, it's a wooden mallet like that was around the thwart of the life-boat, put through.
Q. What was the purpose of that painter?
A. The purpose of that painter is to hold your boat against the ship when you are loading it over into the water.
Q. Against the ship?
A. Against the ship; yes, sir.
Q. Does that boat have frapping lines on it, too?
A. Yes, they have frapping lines, but the only time you use frapping lines is when you have rough weather to hook the boat more steadily against the side of the ship.
Q. Do your duties include cleaning the tunnel, supervising the cleaning of the tunnel?
A. At that time, on the Fitzgerald, we never worked in the tunnel.
Q. Did you have a life jacket on the Fitzgerald?
A. Yes, sir.
Q. One that was yours?
A. Yes, sir, issued to me. It was in the room.
It was my life jacket.

Q. Is it your room or do you share the room with somebody?
A. I shared the room, sir.

Q. Did you have it picked out that that was your life jacket and the other one was his?
A. The life jacket was underneath my berth, sir.

Q. Did you ever get it out and look at it?
A. Yes, sir.

Q. Where was your room?
A. My room on the Fitzgerald was, in 1973, was below deck with a deckhand and then in 1974-75, my room was on the spar deck, port side, middle room. I shared it with the watchman.

Q. How far was it from there to a lifeboat?
A. To the after end of the ship, sir, it would have been roughly 500 feet, probably.

Q. Did you ever think about how long it would take you to get to the other end of that vessel if you had to get off of it?
A. It wouldn't take very long to get me back there, sir.

Q. How long would you think it would take to get you back there and get it out and launch a boat?
A. To launch a boat in rough weather, sir, I think it would be impossible to launch a lifeboat in rough
I don't think I would go for the lifeboat. I would go for the life raft behind the pilot house.

Q. What would you do with that?

A. I would inflate it there on the deck behind the pilot house.

Q. Did you ever see one of those inflated?

A. No, sir.

Q. How do you do it?

A. There is a cord like a trip cord that you would pull. When this was fully extended out, the canister would pop open and your life raft would inflate there.

Q. You were on the Fitzgerald in December and January. How did it come about that you were on right at the end of the year like that?

A. Well, sir, I am on relief over there.

Q. Over there?

A. On the Fitzgerald, sir.

Q. Where do you normally work?

A. Last year I was on the Steamer Sylvania as a watchman.

Q. Let's talk about '74. What did you do for the other part of 1974?

A. I was a watchman on the Sylvania, the Steamer Sylvania, from April 8th to December 23rd, sir.

Q. And then you just went to the Fitzgerald after that?
A. No, sir. I was gone for five days and got a call from the office to catch the Fitzgerald at the National Steel Dock at Zug Island in Detroit, Michigan, on December 28th.

Q. Where was your ship at the time?

A. We were laid up at Collision Bend, Cleveland, Ohio.

Q. Was the Fitzgerald a good ship?

A. Yes, sir.

Q. How did she ride in weather?

A. Rode fine.

Q. Compared to the Sylvania?

A. Like a dream compared to the Sylvania.

Q. Roll much?

A. I don't think so, sir; no.

Q. Did it roll enough to spill a cup of coffee?

A. I don't know, sir.

Q. Never happened that you remember?

A. No, sir.

Q. How was the weather in December and January on this Two Harbors to Cleveland run?

A. It surprised me, sir, because at that time there was no ice in the river and no snow. The lakes were calm. It really surprised me for that time of year last year.

Q. Both years, the year before that, the same thing?
A. No, sir. Well, yes, both years I worked there, it was a mild winter, as you put it.
Q. What college did you go to?
A. I attended Union College in Iowa and I attended Kansas State University for one year. I am presently going to Kent State University.
Q. What program?
A. I am a phys-ed major.
Q. How long do you have to go?
A. Three quarters, 50 hours. That's all.

CDR. LOOSMORE: That's all I have, sir.
REAR ADmIRAL BArROW: Capt. Wilson?

EXAMINATION

By Capt. Wilson:
Q. Was it a common practice on the Fitzgerald to leave the tunnel doors open or closed?
A. When I was there, sir, they were generally opened, sir. I don't think there was any practice.
Q. That's what I meant. Were they generally --
A. Generally they were open, sir.
Q. Left open both forward and after doors, both ends of the tunnel?
A. Sometimes not, sir, because maybe a deckhand would close the tunnel up so that it would keep the cold air from coming aboard.
Q. When they were closed, were they dogged?
A. No, sir; the deckhand just shut that to keep the cold air out, sir.
Q. Was there a latching or just dogs to hold them shut?
A. Just dogs, sir, to hold them shut.
Q. If they closed the doors and didn't dog them, wouldn't the doors slam when the vessel pitched?
A. No, sir, not to my knowledge.
Q. The vessel didn't pitch enough to even open the doors, you mean?
A. I wasn't down there that much to find out about that, sir.
Q. As boatswain, was it part of your duties to notify the mate after you finished loading or offloading, if there was any damage done by the rigs or the equipment?
A. Did you make a tour of the deck outside and check for any damage that the rigs may have done?
A. No, sir. If there was any damage that may have been done by the rigs loading or unloading, the mates would notify us, sir.
Q. Did the mates check frequently as to the loading or unloading that was going on, unloading, let's say?
A. Yes, sir. Now, if you have a Hewlett or a bucket that has done damage to the cargo hold, they would notice it right away and they would have someone down there
from the dock to patch it up, if there was any major damage.

Q. Do the mates, either the mate on watch or any of the other mates, make a close examination of the area around the hatch after the completion of offloading or unloading to see if damage had been done?
A. Not to my knowledge, no.

Q. Just relied upon noticing when it occurred?
A. Yes, sir.

Q. Was that a frequent occurrence on the Fitzgerald?
She was a rather wide vessel. Did she get much damage from the rigs?
A. I didn't see any damage at all from the rigs because the rigs can reach the outside or the inside of the boat.

Q. So you said that one of the trips you went to Toledo. That's a Newlett rig there in Toledo, is it not?
A. Yes, sir.

Q. And the other one was in Cleveland?
A. Yes, sir, and Detroit.

Q. You made a trip to Detroit?
A. Yes, sir.

Q. There are buckets in Detroit, aren't there?
A. Yes, sir.

Q. How about side slopes or double bottoms, do they ever get banged by the buckets?
A. Not to my knowledge, no, sir.
Q. Did you ever at any time on there, did you ever see the hatch end girders or anything get rapped by the dozers when they are putting it in the hold or taking it out?
A. No, sir, because when you put it on, it's midship or right straight down.
Q. On the time that you were on the Fitzgerald when you were making your soundings, did the vessel ever make any water?
A. No, sir. If it did, it would have showed up on the sounding rod.
Q. And it didn't?
A. No, sir.
Q. Since you were in charge of most of the maintenance, what type of hatch clamps did they have on the Fitzgerald?
A. We called them knee knockers, knee busters.
Q. How were those adjusted?
A. They had a set screw on the top and you could adjust them with a 12 or 14 inch crutcheon wrench, sir.
I am not sure what it was, but I never had to adjust the thing.
Q. That wasn't necessary to adjust them?
A. No, sir.
Q. How did you check to see if they needed adjustment?
A. Just by the looseness of the nuts on top of the clamp itself.

Q. That's how you would check to see if they needed adjustment?

A. Yes, but I guess you would just use your own discretion on that.

Q. And do the hatch clamps ever get damaged from any cause?

A. Not to my knowledge, no, sir.

Q. How about the hatches themselves, did you have any trouble with warped hatches on any of the ships that you have been on, flush deckers?

A. Yes.

Q. How do the hatch covers get damaged?

A. One reason is if a deckhand or someone takes a clamp off and you do not see it and you go to pick it up with a hatch crane. Something has got to give.

Q. And it would be the hatch?

A. It would be the hatch, yes, sir.

Q. It would be the hatch rather than the clamp? The clamp would hold?

A. The clamp would hold.

Q. And the hatch would warp?

A. The hatch would spring, yes, sir.

Q. Then what would you do?
A. Well, then, you go tell the mate and then we would try to fix that. We would probably call the shipyard to get that fixed.

Q. That's what normally would be done, but you never had this problem on the Fitzgerald?

A. No, I didn't.

Q. Never had a warped hatch cover?

A. No, sir.

Q. Broken clamp?

A. No, sir.

Q. Damage to the coamings?

A. No, sir.

Q. Did you ever get water in the cargo when you were washing down the pellets after you were done loading?

A. No, sir.

Q. Never had any problem with that? Never heard the engineers fussing and fuming about having to pump out the cargo holds?

A. No, sir.

Q. During the time that you were on the Fitzgerald, you said that it was a pretty good winter.

Were there any bad weather up in Superior while you were up there?

A. What do you mean by bad weather, sir? Gale warnings, storm warnings?
Q. It probably would be on what you would consider bad weather.
A. The last trip of the season of '75, it usually takes us 22 to 23 hours' time that we load out of Silver Bay to the Soo and at this time here it took us over a day and a half to get to the Soo. We were up on the north shore. We had some bad weather then, sir.
Q. Did you lay in?
A. At the time, after we loaded, sir, there was a little wind, but not enough to affect the Fitzgerald running. I would say we got up maybe eight hours, six hours out of Silver Bay, sir.
Q. But you ran for the north shore and then stayed in the Canadian lee?
A. Yes, sir.
Q. But you didn't lay in any place for weather?
A. No, sir.
Q. Just took the long way around.
Was anything damaged because of the weather? How bad a storm was it?
A. I would say probably -- it wasn't one of the worst ones that I have been in, sir, but it was -- the wind was blowing pretty good.
Q. You were loaded?
A. Yes, sir.
Q. Did you go anything special?
For instance, because of the weather, did you go around, during your eight-hour watch, and close the tank vents?

Q. You left the vents -- they were still open then?

A. Yes, sir.

Q. Did you go around and check hatch clamps and covers when you start getting a little weather?

A. Yes, sir, they tell us to check the clamps, check the boat and make sure everything is secure.

Q. Secure, secure any loose gear on deck?

A. Yes, sir, ladders, any oil barrels, I mean empty oil barrels that are on the boat decks and make sure they are fastened down.

Port holes were dogged down below the spar deck and you would report that back to the mate.

Q. You came around to the north shore on that ship. Did the ship seem to work a lot or vibrate a lot or anything?

A. I don't know, sir. The normal bending, yes.

Q. But nothing uncomfortable?

A. No, sir.

Q. You didn't get thrown out of your bunk or anything like that?

A. No, sir.
Q. When you were eating, you didn't hear the engineers complaining about having trouble with any of the machinery?
A. No, sir. The engineers ate their supper in the dining room and we had our own.
Q. How about from the cook? They usually hear from everyone.
A. No, not really, sir.
Q. When you go aft to eat, do people use any particular tunnel or do you use both of them?
A. What is everybody's choice?
Q. Well, mine was the port tunnel.
A. But that wasn't everyone's?
Q. No, it wasn't, sir.

CAPT. WILSON: That's all.
REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:
Q. Mr. Garcia, when you were on this boat in 1974-75, you indicated that during that period you were aboard there were no fire or boat drills, is that correct?
A. Yes, sir.
Q. And why not, do you know?
A. Was there any reason given as to why this wasn't held?
A. No reason to my knowledge.
Q Was Capt. McSorley on board at that time?
A Pardon me?
Q Was Capt. McSorley the master during that trip?
A Yes, sir.
Q During the time that you were on this boat in December of '73-January '74, did you have any fire or boat drills then?
A No, sir.
Q Who was the master during those voyages?
A Capt. McSorley, sir.
Q You have been on other Oglebay-Norton vessels, have you not?
A Yes, sir.
Q What was the frequency, if any, of fire and boat drills on those vessels?
A Once a week, sir.
Q On all of them?
A Yes, sir.
Q Without exception?
A Pardon me?
Q Without exception?
A Yes, sir.
Q Except for the Fitzgerald?
A Yes, sir.
Q When you were on in '74-'75 season, were any
hatches warped as far as you recollect?
A. No, sir.
Q. Did you ever receive any training for inflatable life rafts?
A. No, sir. This is instruction from the Coast Guard inspector at fitout. We had it then.
Q. What port was that?
A. Pardon me?
Q. What port was that?
A. Toledo; Toledo, Ohio, and Detroit, Michigan, also.
Q. And where?
A. Detroit, Michigan.
Q. What kind of training did the inspector give you?
A. He briefed us on how the operation of a life raft would work and also in your galley, you had a diagram, step by step, how it would work forward and aft, and you had a diagram for this, sir.
Q. And you were a qualified life boatswain with a limited AB ticket?
A. Yes, sir.
Q. During the course of your examination, were you given any questions on inflatable life rafts?
A. No, sir.
Q. Do you know what equipment is in an inflatable life
raft?
A. At this time, no, I probably forgot, sir.
Q. Would you know of any such precautions that you would
have to take during cold weather, extremely cold weather,
when inflating or boarding an inflatable life raft?
A. No, sir.

Q. Have you ever seen a film on any of the Oglebay-Norton
vessels about inflatable life rafts?
A. No, sir.

Q. Have you heard about such a film?
A. Yes, sir, I have.

Q. When was that?
A. At AB school at Lake Carriers Association.
   The film never came in, sir, so I never had a chance
to see it.

Q. What year was that?
A. 1974, sir.

Q. Who hires you?

You come out of the hall, or how do you get in a par-
ticular vessel?
A. I have been with the company three years, sir, and
I was called by the personnel manager to report to such
and such a vessel each spring.

Q. Did you know any of the people that were lost on
the Fitzgerald? Did you know any of them personally?
Yes, sir, I did.

How many?

I would say about 20, sir.

That you had sailed with?

Yes, sir.

Mr. Garcia, we have recovered lifeboats and we have recovered life rafts, and numerous rings, life jackets, but we haven't recovered any people.

In your opinion, why didn't we recover anybody from the Fitzgerald?

Well, when I was sailing, I have heard stories that when a ship goes down in Lake Superior, it never gives its dead up. I don't know why they say that.

Superstition among seamen, is it?

I would say so, sir, from the people I talk to, yes.

Do you think if any of those people had been in a lifeboat, we would have found them?

In a lifeboat, possibly; yes, sir, but a life raft, definitely, yes.

How about if they were in life jackets, do you think that we would have found them?

I think so; yes, sir.

You have described a bad storm for Capt. Wilson, that you were in, not the worst storm, you said, but a bad storm. If you had to get off the Fitzgerald, how would you
do it? What piece of equipment would you want to use?
A. The life raft, sir.
Q. Why?
A. It is more safe and you are protected by it.
Q. You say protected. What protects you?
A. You have a canopy. It encloses you and you zip it up, and the water and wind won't get to your body.
Q. It protects you from the elements?
A. Yes, sir.

REAR ADMIRAL BARROW: Counselor?
MR. MURPHY: No questions.
REAR ADMIRAL BARROW: By the Board?
Cdr. Loosmore?

CDR. LOOSMORE: No, sir.
REAR ADMIRAL BARROW: Capt. Wilson?
CAPT. WILSON: Nothing.

EXAMINATION

By Rear Admiral Barrow:
Q. Mr. Garcia, we have put a number of questions to you to get as much information as we could about your knowledge of this vessel on the Great Lakes.
I will ask at this time if there is any information you have or any knowledge you have regarding the Fitzgerald which you think would be useful to us in determining
the cause of this casualty.

If so, I will ask that you tell us about it now.

A. Do you want my theory of how she went down?

Q. Any knowledge that you might have regarding the
vessel or the people on the vessel.

A. No, sir. To my knowledge that was the best crew
that could have been on the Fitzgerald with the mates,
engineers and the skipper.

The men throughout the Oglebay-Norton Co. knew
the Fitzgerald as the "mighty Fitzgerald." She was
the queen of our fleet.

It was unbelievable when we heard that she went down.

Q. You have indicated you have some beliefs or some
opinions.

Would you care to state those for us, please?

A. Well, it is my belief that, from newspapers and
the talk we had on the ship, that she was taking water on,
and this led me to believe the water got too great for
her pumps, and the waves just turned her over.

Q. Do you think she capsized?

A. That is my belief or opinion, yes, sir. That is
my own opinion, no one else's.

CAPT. ZABINSKI: Do you think that's
one of the reasons we have not saved anyone aboard
the Fitzgerald or recovered anyone?
THE WITNESS: I don't think so.
I don't think the men had a chance to get out of
their rooms.

By Rear Admiral Barrow:

Q. You think they were trapped inside?
A. I think so, sir.

REAR ADMIRAL BARROW: Thank you very
much. Do you have anything else to offer?

THE WITNESS: No, I don't.

REAR ADMIRAL BARROW: You are excused,
and I caution you not to discuss your testimony
with anyone else other than counsel until the
conclusion of the investigation.

THE WITNESS: Thank you very much.

Will I be called again?

REAR ADMIRAL BARROW: No.

(Witness excused.)

(Recess had.)

REAR ADMIRAL BARROW: Let the record
show that we reconvened at 5:32; counsel for
Oglebay-Norton present and Cdr. Loosmore.

CDR. LOOSMORE: The Board calls
Cdr. Corbett.
CHARLES CORBETT

was called as a witness and, having been first duly sworn,
testified as follows:

EXAMINATION

By Cdr. Loosmore:

Q. Would you be seated, please?

State your name, rank, service number and organization,
please.

A. My name is Charles Corbett, Commander, United States
Coast Guard, Chief of the Marine Environmental Protection,
Ninth Coast Guard District.

REAR ADMIRAL BARROW: Cdr. Corbett, the
purpose of this investigation is into the sinking
of the SS Edmund Fitzgerald.

I think perhaps we have called you for limited
purposes dealing with environmental protection,
pollution matters.

There may be some other matters.

I would ask you to respond to the questions
as clearly and concisely as you can restricting
your answers to the questions which we ask.

Please speak slowly and distinctly so that
we can get a verbatim record.

Off the record.

(Discussion off the record.)
REAR ADMIRAL BARROW: Back on the record.

By Cdr. Loosmore:

Q  Cdr. Corbett, excuse me, do you hold a Coast Guard Merchant Mariner's license or document?
A  No.

Q  Would you briefly describe your duties as Chief of the Marine Environmental Protection Branch?
A  My branch works under the auspices of the Marine Safety Division.

Generally speaking my staff and field people are responsible for the conduct of the Coast Guard's Marine Environmental Protection Programs, especially those dealing with oils, hazardous spills and prevention of those spills.

Q  Was your branch involved in any of the effort involved with the sinking of the Edmund Fitzgerald?
A  Yes, it was.

Q  Would you briefly summarize that involvement?
A  In the morning hours of Monday, about midnight, I was advised by the Rescue Coordination Center that there had been a sinking in Lake Superior near Whitefish Bay.

That is the normal procedure in the event that there is some pollution.

The following morning we were monitoring the situation
maintaining a low profile due to the Search and Rescue
efforts, trying to determine the amount of fuels carried
on board the vessel and what the pollution potential
might be.

About one o'clock Tuesday, it became apparent that
there was in fact some discharge of what seemed to
be or what was reported to us as heavier oil.

We had learned at this time that the vessel carried
about 75,000 gallons of Bunker C and in the vicinity
of 75,000 gallons of diesel, and of course there was
residual oils normal to vessels.

Since the sinking was very near the Canadian
border, I recommended to the District Commander that we
activate the provisions of the joint Canada pollution
contingency plan.

The main vehicle by which this plan operates is a
joint response team, of which I am normally a member.

The team consists of various Canadian and U. S.
agencies, oriented towards environmental affairs.

Admiral Gracey activated the provisions of the plan,
and the team proceeded to Sault Ste. Marie to assist
and advise the on scene coordinator, the Captain of

We all arrived up there about midnight Tuesday,
Monday to Tuesday, and we met together the following
morning.

During the next few days, we assisted and advised the on scene coordinator, assisting him in directing shore patrols of the beaches, looking for oil, aerial patrols, and there were available aircraft; otherwise providing him any technical guidance which the team could provide.

We determined on late Friday that the pollution potential was negligible, having determined or expressed a unanimous opinion that the majority of the Bunker C which was on board had reached a sufficiently low temperature to reduce or rather increase its viscosity so that it was no longer venting.

Using an aircraft the next day, we located what we believed to be the oil from the vessel surfacing in that position. We concluded that was the diesel oil used in the bow thruster mechanism, and that oil then, of course, did vent and dissipate.

It was never a real pollution threat as far as the environment was concerned.

As I said, on Friday we recommended to the on scene coordinator that the joint response team disband and the provisions of the joint Canada team be revoked, and we recommended that to the Commander of the Ninth Coast Guard District.

He concurred, and we disbanded for pollution purposes.
That really is the extent of the pollution activities, and the pollution did not reach the magnitude it might have.

I might say also in this expression of opinion that we did conclude that there was a discharge of Bunker C as evidenced by the oil on some of the debris which we saw.

But that could easily have been vented close to the time when the accident occurred, since the operating temperature of the Bunker C was sufficiently high at that stage to permit it to vent.

As I said, as it cooled, it would cease to vent, reaching a temperature at about 41 degrees Fahrenheit.

Q. You started out to talk about and you said on Monday. What date was that, do you recall?
A. I guess that would be the 10th, would it not?
Q. The 10th of November?
A. Yes.
Q. And you said in the early morning hours. Did you mean on early morning --
A. I meant between Monday and Tuesday, the evening between Monday and Tuesday.
Q. Other than yourself, what Coast Guard forces were involved in the effort as you have summarized it?
A. Well, the Coast Guard Air Station at Traverse City,
Michigan, was involved in assisting in the search, the coast guard cutter -- all of the units that were involved in the search for survivors were also involved in the search for pollution; by that I mean the Woodrush and the other Coast Guard units.

Q. Did you call in any other forces particularly for pollution?

A. Yes, the Atlantic strike team from Elizabeth City, North Carolina; a portion of the National strike force was called to assist and to aid the joint response team, and the on scene coordinator; they responded with two men.

Q. And what was the time of the first notification that you had concerning pollution?

A. Well, the first notification was that mid-evening telephone call that the ship had in all likelihood sunk and we, therefore, assumed there would be some pollution and began monitoring the situation at that time.

Q. What was the time of the response, of anyone concerned with the pollution aspects of this case?

A. Well, the following morning we began to here in Cleveland, as I said, maintaining a low profile, due to the other attempts, began making inquiries into the type of petroleum products the ship carried aboard and we took a more active role on Tuesday when we recommended to the District Commander to activate the joint team.
Q. How was this accomplished?
A. By telephone and followed up by message.
Q. Was there any cleanup effort involved in this?
A. None, none, except that I guess I should add that we were contacting commercial and government forces, both Canadian and U. S., in the event pollution was required so in that manner there was some activity taking place but there was never an actual cleanup required.
Q. You said that you determined that the pollution potential was negligible, is that an official determination that's made?
A. If I said determine, I guess I would still stay with that, that's the term we use, was an expression of opinion that we -- that the joint response team generated.
Q. "Determine" may be my word. If it's unfair, change it.
A. No, I am not sure -- I think "determine" is fair because I think that is right yes.
I still believe that the pollution potential is negligible.

First of all I believe that the diesel oil in the bow thruster has vented and in that event, the Bunker C remains in the ship in a tar-like configuration, very heavy, very viscous, not venting to the environment.
Q. Will that change during the summer months?
A. No, the temperature at that depth in Lake Superior was determined by the joint response team using our sources, we determined that the temperature will remain about 41 degrees Fahrenheit at that depth.
Q. Is there any further effort as far as the pollution aspects of this particular case which are anticipated at this point?
A. No.
Q. You said you saw the debris?
A. Yes.
Q. Did you personally see it?
A. I saw some of it.
Q. Under what circumstances?
A. The debris was loaded in a shed and in a room at Coast Guard Sault Ste. Marie and it was just lying around, so to speak.

We went down mainly to look at the oil and determine, in fact entirely look at the oil on the debris to see what kind it was.
Our adviser from the Environmental Protection Agency and a petroleum engineer identified it almost immediately as Bunker C type oil.
Q. Did he take samples?
A. Yes, he did.
Q. Did you examine the items?
A. The items or the oil?
Q. The items.
A. No.
Q. Did you examine more than one item for oil?
A. I saw oil on more than one item. I couldn't tell you what the items were at this time.
Q. Was there anything else on the debris other than the oil that you noticed?
A. Nothing that I noticed.

CDR. LOOSMORE: That's all I have.
REAR ADMIRAL BARROW: Capt. Wilson?
CAPT. WILSON: No, sir.
REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:
Q. Cdr. Corbett, do you have to file a pollution report of any kind as a result of this incident?
A. Yes, sir.
The Captain of the Port, the on-scene coordinator, has filed a report and we are processing it right now.

CAPT. ZABINSKI: I wonder, Mr. Chairman, if when they have it they will furnish it to us so we can see whether we want to make it a part of our record.
REAR ADMIRAL BARROW: Please send it to
the Chairman of the Board.

THE WITNESS: Yes, sir.

By Capt. Zabinski:

Q. Was any oil recovered from the Fitzgerald?

A. The only oil that was recovered was what was on
debris.

Q. What are your future plans in regard to this pollution
incident?

A. Well, simply process the case and it will be presented
before a hearing officer who makes a determination if
the waters of the United States were affected, and if
they were, in all likelihood, some sort of civil penalty
will be assessed and we will also attempt to recover
some of the costs that were incurred as a result of this
response.

Q. Are there any plans to fly over or to future monitor
the Fitzgerald pollution potential?

A. No, sir; it will be observed through our routine
pollution slides, but there will be no special flights.

Q. No special flights. Your plans are to doing your
routine -- how often are they conducted?

A. Well, they are conducted sometimes every other week,
it varies depending on the weather, but I don't recall
right now how many times a week we go in to Superior,
but we could make it available to you.

It's also right in the shipping lanes which provide
us, of course, with any information as to future seepage
should it be during the shipping season.

EXAMINATION

By Rear Admiral Barrow:

Q. Commander, was there any shoreland search accomplished
in connection with the oil seepage there?

A. Yes, sir, a good bit of our activity was towards
the shore line search, both on the Canadian and Michigan
side.

This was conducted through members of our team,
meeting on the Canadian side with the Ministry of
Transportation and on the Michigan side with the Michigan
Department of Natural Resources.

Q. And how long did that go on?

A. Wednesday, Thursday and Friday, three days.

Q. And what basic shore line was covered during that
search?

A. It was north of Copper Mine Point and southward down
through Whitefish Bay.

I don't have any references that I could give you in
my head, although it is in the case record.

On the Michigan side, the patrols were from Whitefish
Point well westerly to a geographic location which I
cannot recall the name of right now.

I have it here if you want me to look for it.

Q. If you would, please.

REAR ADMIRAL BARROW: Let's go off the record.

(Discussion off the record.)

REAR ADMIRAL BARROW: Back on the record.

Q. Do you have it there?

A. Yes, sir; I do. The shore line search on the Canadian side was generally conducted between Point Auxpines and Gros Cap.

On the Michigan side it was generally between Whitefish Point and Muskellunge.

The search, naturally, was dependent on some weather and some was conducted by aircraft, and some was conducted by shore parties.

The shore party search was conducted in a manner where ease of access would be taken into consideration.

In other words, I am sure that a search, that a walk from Whitefish Bay to Muskellunge was conducted by points of access, assuming that we were searching for oil, and we would have found it.

Q. How many days did this go on?

A. Three days.

REAR ADMIRAL BARROW: Counselor, do you
have any questions?

MR. MURPHY: Yes, I have just one, please.

EXAMINATION

By Mr. Murphy:

Q. I want to say hello again, Cdr. Corbett. I want to express the appreciation of the Oglebay-Norton Co. for all the cooperation and assistance received from you during the course of the early days at the Soo.

I wanted to just ask you for the record whether or not you feel free to state whether or not you did, in fact, receive the cooperation from the company that was requested and required in this endeavor?

A. Very much so, yes.

MR. MURPHY: Thank you, sir.

I have no further questions.

REAR ADMIRAL BARROW: Any other questions by the Board?

CDR. LOOSMORE: Do you want that pollution incident report as it was received or after the District action was completed?

REAR ADMIRAL BARROW: As it was received.

CDR. LOOSMORE: You can forward that via letter to the Board in care of the Ninth Coast Guard District.
REAR ADMIRAL BARROW: Thank you very much, Commander. I will give you the opportunity now to tell the Board anything else that you might have within your knowledge relating to the particular part you played in this operation?

THE WITNESS: No, sir. I think I had ample opportunity.

REAR ADMIRAL BARROW: Thank you very much. You are excused. You are cautioned not to discuss your testimony with anyone other than counsel until the conclusion of the hearing.

Let's go off the record.

(Witness excused.)

REAR ADMIRAL BARROW: Back on the record, please.

CDR. LOOSMORE: The Board calls Mr. Larson. Would you please stand and raise your right hand?
JOHN H. LARSON

was called as a witness and, having been first duly
sworn, testified as follows:

EXAMINATION

By Cdr. Loosmore:

Q  Would you please state your name, address and
occupation?

A  John H. Larson. I am a merchant seaman. My address
is 316 South Third Avenue, Sturgeon Bay, Wisconsin.

REAR ADMIRAL BARROW:  Mr. Larson, the
purpose of this investigation is to try to deter-
mine as best we can what happened to the Edmund
Fitzgerald, which sank on 10 November 1975.

As you are aware, there were no survivors to
that sinking, and, as a matter of fact, we have
not recovered any bodies from the sinking.

We have interviewed and taken testimony from
a wide number of people, anyone that we thought
might have any information at all concerning the
vessel itself and the people who sailed it, proced-
ures involved in the sailing of it, et cetera.

I will ask you to answer as clearly and as
concisely as you can the questions put to you by
this Board and by counsel.

We are trying to take a verbatim record, so
if you would speak up and talk slowly and
distinctly, so that they can take you down, we
would appreciate it.

Do you understand, sir?

THE WITNESS: Yes, sir.

By Cdr. Loosmore:

Q. Mr. Larson, do you hold a Coast Guard Merchant
Mariner's license or document?

A. Yes, sir.

Q. Do you have that with you?

A. Yes, sir.

Q. May I see that, please?

A. Yes.

CDR. LOOSMORE: I have a U. S.
Merchant Mariner's document issued to John Hugo
Larson, 2956561.

It was issued at Milwaukee, Wisconsin on
5 March 1965, Able Seaman, any waters, unlimited,
wiper messman, food handler, and it is validated
for emergency purposes.

(Pause.)

CDR. LOOSMORE: Let the record show
that the document has been returned to Mr. Larson.

Q. Mr. Larson, do you hold a Coast Guard license?

A. No, sir.
Q: How old are you, sir?
A: 54.
Q: How long have you been sailing?
A: Oh, about 22 seasons.
Q: And of those 22 seasons, how many of them were on the Great Lakes?
A: All of them.
Q: Have you ever had any ocean experience?
A: No, sir.
Q: In those 22 seasons, have you ever taken one off, one or more?
A: Yes, sir.
Q: When did you first begin sailing?
A: What year?
A: 1952 and '53. It was those two seasons, I think.
Q: In your experience, did you ever sail on the Fitzgerald?
A: Yes, sir.
Q: When was that?
A: I shipped on the Fitzgerald in the spring of 1967 and I was there in 1967, '68 and '69 and then I was transferred to the Armco. Then I was on the Armco for -- I was on the Armco and went back to the Fitzgerald in 1972 and '73.
Q: When was the last time you sailed on the Fitzgerald?

Q. What were your duties during the time that you were on board the Fitzgerald?

REAR ADMIRAL BARROW: Excuse me.

Were you on there the complete 1973 season?

THE WITNESS: Yes, sir.

By Cdr. Loosmore:

Q. What was your assignment on board?

A. My duties were -- well, to relieve the wheelsman on the night watch and to take care -- at that time you took care of the deckhands. You run the deck crew during the daytime for tying the ship up and loading at the docks, you know, shifting it and lookout, you know, in bad weather.

Q. What was the job title?

A. Watchman.

Q. Were all five seasons, were you a watchman?

A. Yes.

Q. Were you on for the full season for each of the five?

A. Yes, sir. Well, when I shipped out in '67, it was in May and the boat was already fitted out.

Q. Was Capt. McSorley master during any of that time?

A. Well, he was master in '72 and '73 when I was on the Fitzgerald.

Q. Did you have an opportunity to sail with him
at any other time?

A. Yes, sir, he was skipper on the Armco in '70 and '71 when I was there.

Q. How many seasons total did you spend with Capt. McSorley?

A. Four.

Q. Four seasons.

What did you think of him?

A. He was a very, very good skipper, very cool headed and he was a good seaman.

Q. Did you have confidence in him?

A. Yes. In fact, I planned on, if this didn't happen, I planned on going there next year.

Q. Where are you presently assigned?

A. I am on the Armco now.

Q. Back on the Armco?

A. Yes.

Q. Have you been on the Armco all season this year?

A. Yes, sir.

Q. You feel you knew Capt. McSorley?

A. Well, I didn't know him too well, no. He never said too much, you know. He never said too much, no.

Q. But you had confidence in him?

A. Yes, sir.

Q. Complete confidence?
Q. Was he a thorough man? Would you use those words to describe him?

A. Very competent, I thought.

Q. Okay. What were your duties under Capt. McSorley on board the Fitzgerald when the vessel was loading?

A. Well, to take care of the after ladder and run the winch, the mooring winches, to shift the boat and after we loaded, then I had to run the deck crane and secure the hatches, you know, and then after we were under way, usually in the daytime, you hose off the deck, clean the deck up.

Q. You said you ran the after ladder.

A. Attended the after ladder.

Q. What ladder?

A. The boarding ladder. It is run by power. You raise it by power, but somebody has to watch it, you know.

Q. What was its purpose during the loading?

A. Well, for anybody getting off or on, you use that ladder.

Q. Were there people getting off or on during loading?

A. Oh, yes. The crew coming on or to see their families or make a phone call, yes, they used the boarding ladder. Somebody had to watch it, you know.

Q. Did you ever load at a chute dock while you were on
the Fitzgerald?
A. Very few times.
Q. Where did you mainly load?
A. Silver Bay.
Q. What kind of a dock is that?
A. It is a belt -- they use a belt, two belts.
Q. Do you pay much attention to the loading procedure?
A. The mate does all the loading.
Q. Were you out there during the whole time?
A. Yes, sir.
Q. Do you kind of keep an eye on what is going on?
A. Well, yes. Somebody is usually up on a ladder all the time.
Q. Up on a ladder?
A. Well, on the ladder or the winches. If it is surging or something, you have to control the winches.
Q. Pretty busy job, then?
A. Well, you have to run the grocery hoist for taking on supplies and you are busy, supplies like gas tanks and groceries.
Q. How about unloading, are you as busy during an unloading operation?
A. No.
Q. Didn't you have people that went ashore?
A. Yes, you still had to watch the ladder.
Q. Do you have to be out there?
A. Yes, sir.
Q. Where did you unload most of the time that you were on the Fitzgerald?
A. In Toledo, Ohio. We had two unloading docks, one at Lakefront and the other at C & O.

(N.B.: See next page.)
Q: During the time you were on the Fitzgerald, did you ever see any damage caused to the structure during the loading or unloading?

A: Well, one time in Detroit, one of the few times we went to Detroit, one of the unloading rigs dropped a bucket on top of the hatch coaming, but it was probably, this was probably the year they had the riots in Detroit.

Q: Were you there at the time?

A: Yes.

Q: Were you unloading in Detroit at the time?

A: Yes.

Q: Do you think the dock guy did it on purpose?

A: No. I think it just had a short and dropped down and flattened the coaming. They repaired it. A welder or welders came aboard and repaired it, and they made it seaworthy.

Q: They fixed it then?

A: Yes.

Q: What time of year was that?

A: It must have been in July or something like that.

Q: In the middle of the summer like that it would not have made any difference, would it?

A: If you didn't have any bad weather, it wouldn't.

Q: Did you always sail with the hatch covers on?

A: Oh, yes.
Q. Summer and winter?
A. Yes.
Q. Did you ever take one off at sea or out in the lake?
A. In calm water, they generally take them off and paint the cargo holds or something like this, you know.

They don't take them all off. They just take them off maybe three or four in the one hold, and then they will get some draft down there and dry it out so they can paint it.

Otherwise, them pellets sweat, and there is quite a bit of condensation in the cargo.
Q. The pellets sweat, do they?
A. They are hot, and when you put the covers on, it makes steam.
Q. How hot are they? Can you hold one? Not that you want to.
A. They are not that warm, but they make your feet warm when you go down there.

In cold weather, steam comes out, and it melts the ice off the deck.
Q. Are they steaming as they come out of the chute?
A. Yes, sir. That is when they come out of the plant.
If they are stockpiled, then they are cold pellets.
Q. Does it make any difference as far as that aspect of it, the temperature of the cargo, whether you load at a chute dock or a conveyor like at Silver Bay?
A. If it is a chute dock, I imagine they probably have
been stored in there on a stockpile, and they just load off
a stockpile.

Q. Well, not to imagine, but more in experience, thinking
back, have you ever seen the steam at a chute dock?

A. No, I don't think so. It was mostly cold pellets.

Q. Did you do anything different loading with the pellets
when they were cold?

A. No. The loading is the same.

Q. You were running the winches. Did you ever know
when you were running the winches to have the vessel aground?

A. Well, when you come into Toledo, that is all mud, and
you are loaded pretty deep.

You may rub against the bank, you know, because it is
pretty hard getting in there.

Q. That is not much of a problem, is it?

A. No.

Q. What do you do about it?

A. Well, they just run the engine until you come up
alongside the dock, and you get the wires and pull her in,
and you use the wires to pull her in closer to the docks.

Q. About how far away do you have to stay?

A. I do not know. Sometime it might be six to ten feet.

Q. Do you have to shift down the dock when you are
unloading?
A. Most docks, no.

Q. How do they go from hatch to hatch then?

A. Well, the Hewlitts or the unloading rigs move on their own power.

Q. Did you ever help the mate by taking soundings or draft readings while you were loading or unloading? Did he ever ask you to do that?

A. Once in a while they ask you to go down and check the marks for them, yes, but it is during the loading, not finishing up. The licensed man always reads the marks.

Q. At what time is that?

A. When finishing the loading, they generally call another man out, a mate, and he checks the marks as they are finishing topping the load off.

Q. You said, Mr. Larson, that one of the things you did was run the deck crew.

A. What does a deck crew do?

A. Well, scrape paint, chip and scrape paint, and the vessel is painted just about every year, you know, the hatches and sometimes, most often, they paint the cabins.

Q. Do you stand a watch?

A. Yes.

Q. Which one or how long?

A. A four-hour watch.

Q. Which watch do you stand?
A. On the four to eight watch.

Q. Four on and eight off?

A. Yes.

Q. As watchman, did you have anything to do with the deck vents?

A. Yes. That was part of the maintenance work. We generally cleaned them and wirebrushed them and oiled them so they would work, you know, so if you had to close them you could close them.

Q. If you had to close them? Did you ever close them?

A. No, but you always left them cracked so they wouldn't blow a tank up, you know, so they got air and either pumped it in or pumped it out.

Q. What do you mean by left them cracked?

A. Well, at least you could get your hand in probably an inch or inch and a half or so.

Q. Could they have been opened wider would you say?

A. Oh, yes.

Q. Was there a standard routine of opening or closing them? Did you just leave them pretty much open?

A. We just left them open, because when they start closing and opening them, one of them will stick, and if they pump water in you may blow a tank.

Q. How many tanks or how many vents does each tank have?

A. About two. One is on the forward side and one is on
the aft side.

Q. Did you ever hear of anybody blowing a tank up?

A. Yes.

Q. Do you remember what type of ship it was on?

A. I think it was the Buffington. I am not positive, but it was many years ago.

U. S. Steel started closing the tanks, and then he started going around, a licensed man started going around, one of the deck crew went around and close them. It was a safety precaution.

Q. Was that with your company?

A. No.

Q. What company did you say that was?

A. U. S. Steel.

Q. Do they do things a little different?

A. For a while there, they never closed the vents or opened them and they started this procedure, and that is when they moved the tank up, where we had to go up to the shipyard and get the tank repaired.

Q. What do you think generally of the U. S. Steel fleet?

A. Well, it is run efficient. They are fairly -- they all go by the book.

Q. Good ships?

A. Yes, they take good care of them.

Q. Good people?
A. I would say so.

Q. Is there any way you could tell by looking at one of those vents whether it is opened or closed?

A. They generally have stoppers on them. That would indicate where they go down so far.

Q. Can you tell by looking at them as you are walking by?

A. Yes.

Q. This is Exhibit 19, a picture of the Fitzgerald, which was offered earlier.

   Earlier testimony has indicated that it shows some vents. You agree with that?

A. It shows some vents?

Q. Yes.

A. Those are two vents right there (pointing).

Q. Can you tell from this picture whether they are opened or closed?

A. No, I can't see any stopper there.

Q. So what would that indicate?

A. Well, I mean, they look high enough so that they look like they are open.

Q. They look like they are open?

A. Yes.

Q. Can you tell me where that picture was taken? Do you recognize any of that country behind there?

A. Detroit someplace, I think.
Okay, thank you. Is there any maintenance that you had
to do on the hatches or the hatch clamps, Mr. Larson?
Well, they get oiled a few times a year, a couple of
times a year, free them up.
Was it you and your deck crew that secured the hatch
clamps or unsecured them?
Yes, sir.
Much of a job?
When you put them all on, it takes, you know, a good
hour, or I think a little over an hour, I suppose.
How long would it generally take?
Oh, you mean when they are running in the summer?
Yes.
And they just put every other one on or something?
Is that what they do?
It varies. Some captains carry more and some carry less.
Some probably figure it stiffens the boat up if they have
them all on in rough weather.
Were you ever in any rough weather with Captain
McSorley?
Yes, we had a few storms.
Do you recall what he did with the hatch clamps?
Well, he always carried enough in summer and in the
fall he carried quite a few more and then when loaded he
would put them all on in the fall.
Q. How do you tighten one of those clamps? How do you put it on and tighten it, or do you just put them on?
A. You have a wrench and it is about two foot long and it is similar to a dinner-bucket clamp. It goes on and pulls down, like a latch. It locks in place.
Q. It is not a regular adjustable wrench? It is a special wrench for that hatch clamp?
A. Yes.
Q. Do you know whether those hatch clamps have a name? Is there anything you call them?
A. No, just clamps.
Q. Do you ever have to adjust them?
A. Well, yes. Sometimes you have to adjust them as they wear.
Q. That would have been done by your deck crew?
A. Yes, and they are generally painted. You really don't need much paint because they are heavy steel.
Q. How could you tell if they need adjustment?
A. If they go on too easy. There is no tension. You have to have enough tension to hold them in place, you know, otherwise they fall off.
Q. If they go on easy, that would mean it would be easier to put on, wouldn't it?
A. Oh, yes, but they wouldn't do the job, though.
Q. Who checks that?
A. Well, that is up to the first mate. That is his job to look after that.

Q. Did the first mate that you sailed with walk around and check them?

A. Well, yes, any time there was one damaged or something like this, they would have it put into the winter work and they would fix them.

Q. Is there a way to fix them during the season?

A. Yes, they have lots of work done by Mertz Boiler in Toledo. When they unload, they come aboard and weld and do odd jobs.

Q. Do your duties include sounding the tanks?

A. No, sir, that used to be the deck watcher's job and now he sounds it every watch on the run, day and night, and the boatswain, you have a maintenance man called a boatswain, and he sounds it in the morning, if the seas aren't rough.

Q. How many times a day is it done?

A. It is done once a day.

Q. And it is not the watchman doing that anymore?

A. No.

Q. Did your deck crew have to be concerned about the drains and the vents for the tunnels, the passageways?

A. Yes. That would be the watchman's duty, if they washed a tunnel out and scrubbed it down.

A. The watchman secured a plug and made sure the vents were
cracked so they didn't blow a tank up, because they usually
run the hoses down the vent pumps there.

Let's see, on the Fitzgerald they ran it down the
tunnel vent on each end.

Q. They would run what down the tunnel vent?
A. The hose.

Q. Okay. It would take a long hose, wouldn't it?
A. Yes.

Q. Where did you get that hose?
A. Well, they have some inch hose that is heavy-duty, and
they have many shots.

On the Armco, the vents are a little different. They
have a cap in the middle of them, and you take that cap out
in the tunnel, and you can run a hose in there on each tunnel
vent.

Q. So you had to take that cap off?
A. Yes.

Q. How often would you wash down the tunnels?
A. Yearly they scrubbed them.

Q. It is just a matter of taking that hose in and washing
down and hosing it down?
A. Yes. The water runs aft, and it drains out of a plug
they take off on the tank top.

Q. The guy doing it must get pretty wet?
A. Yes. You have to wear foul-weather gear.
Q. Is there anything in that tunnel you have to be careful of with all that water?
A. We generally put a valve on the hose, and then you turn it off if the drain wouldn't take the water. You check the valve.
Q. But there is not anything along the bulkhead that you would have to worry about?
A. No, no. It is all waterproofed.
Q. What ship did you say you were on now?
A. The Armco.
Q. Does that have that strain gauge on it, does it have the strain gauges?
A. Do you mean mercury gauges?
Q. No, I mean the hull strain gauges.
A. Do you mean to indicate a list?
Q. To indicate the strength of the hull?
A. They have had them on and recorded the tension of the hull after they lengthened it, but I don't think they have any recorders on there.
Q. Where were those instruments?
A. Well, in the new section pretty much.
Q. Were they in the tunnels?
A. Yes, sir.
Q. What did that have to do with the cleaning of the tunnels?
They are all sealed.

Q. So you didn't have to worry about that?

A. No.

Q. As watchman, what were your duties, and your assignment if you had to abandon ship?

A. On my watch, I had to run the after boat davit falls in the fire and boat drills, and I had to turn on the valve forward and the wheelsman would take care of it.

Q. How often did you have drills?

A. Well, in '67 when Captain Paulson was there, he made sure we had a drill every five days, unless it rained or something or there was foul weather.

When McSorley was there, he was a little easier.

I wouldn't say he never had a drill, but I can't say how often he had one.

Q. You sailed with him for four years; is that right?

A. Yes.

Q. Did you have drills regularly?

A. Not regularly, no. I wouldn't say that.

Q. Did you have one every trip?

A. No, sir.

Q. Once a month maybe?

A. No. I would not say it was once a month. He did not have them regularly.

Q. More often than once a month?
A. No. He did not have them that often, no.
Q. Was the crew on the Fitzgerald pretty much the same?
A. Yes, sir. Some of them had only been there, one of the
wheelsmen was there since the boat was built, I think.
The one wheelsman at the time I was on there, and that
was in '67, '68 and '69, he was on there 11 years all together.
Then he retired.
Q. How long do you think it would take to launch a boat
from that ship?
A. A lifeboat?
Q. A lifeboat?
A. Well, these lifeboats were bigger than the regular size.
I think they were 50-man boats where the regular man boats
were only 25. They were very big boats.
Q. How long do you think it would take to launch it?
A. I think you could get it in the water in five minutes
or so.
Q. Did you ever do it?
A. We put them in the water, you know, but I don't know if
it took under five minutes. It would probably take about
five minutes.
Q. How about liferafts? Did the Fitzgerald have liferafts?
A. Well, it had a tank-type raft on top of the pilothouse,
until they came out with these new types that were operated
by CO₂.
Q. Did you ever tip ship while you were a wheelsman?
A. No. I was never a wheelsman.
Q. Excuse me, a watchman on the Fitzgerald?
A. Yes. They tipped it several times.
Q. Did you have anything to do with that?
A. No. It is just that the watchman would have to get the work boat ready to have it lowered over the side.
Q. Is that the ship's work boat?
A. Yes.
Q. Where was that stowed?
A. On top of the stack deck, in back of the stack someplace.
Q. Right near the boatswain?
A. Yes, it was. Well, the lifeboats are on the boat deck and the work boat was on the stack deck.
Q. Is that the next deck up?
A. Yes, back of the stack.
Q. What else was stowed back there, what other kinds of things?
A. I imagine he had planks and ladders and they had ladder racks back there.
Q. Oil drums?
A. If they had oil drums, they could have been on the boat deck.
Q. Were there some life jackets back there on the boat deck,
too?

A. Yes, sir, life jackets, and generally they have boxes with generally about 25 on each side.

Q. Quite a few on each side?

A. Yes.

REAR ADMIRAL BARROW: Captain Wilson?

EXAMINATION

By Captain Wilson:

Q. Mr. Larson, you mentioned hosing down the tunnel by putting the hose down through the tunnel vents. Were those vents -- did you have to take the cap off to get the hose down there?

A. Yes, sir.

Q. Did you ever damage the vents? It would seem that you would have a long length of hose down there. Wouldn't you have some couplings that you would have to pass down the vents where the hoses connect? Would that have to go down the vent to get enough hose down there?

A. There must have been about an eight-inch pipe and it is just flush with the deck.

Q. The pipe would stick up, though.

A. Oh, yes, but it is flush with the overhead.

Q. I see what you mean.

Would the caps on the vents, were they normally left closed or open? Were they left open, too?
A. Yes, generally, to get circulation in the tunnel.
Q. Did they leave the tunnel doors opened or closed?
A. Well, generally in good weather they left them open.
Q. How about in bad weather?
A. Sure, they were closed.
Q. If you left them open, wouldn't you get a lot of dust out of the tunnel when you are loading?
A. They closed all the doors when they are loading.
Q. They closed them?
A. Yes. It is pretty dusty during loading.
Q. When you cleaned out the tunnel, hosing out the tunnel, didn't you have any problems with getting your electrical boxes in there wet or were they waterproof?
A. They were all watertight and the lights all had vapor globes on them.
Q. You said you tended the ladder. This was power-operated, right?
A. Yes.
Q. Did you have to manually do something with it?
A. Yes, you push a button to lower or raise it and then put a chain across when it is raised, so that somebody don't accidentally step off of it, you know.
Q. Did the ladder shift a lot when you are loading? I mean, did the boat go down fast? Did the ladder move up and down?
A. Well, the ladder was mounted on rollers. It was on a roller and it took care of itself.

Q. You were in the area. I thought maybe you would notice this in loading.

A. The angle would change, yes.

Q. Did that change occur more earlier in the loading process or later, sir? In other words, did you get a lot of shift in the boat, settling of the boat, right after they started to load, or was it about the same all the time?

A. They loaded at 21 hatch, if they loaded that first, yes.

Q. So when they loaded 21 hatch, that was an early part of the load, the 21 hatch?

A. Yes.

Q. Did they load forward at the same time when they were loading 21 hatch? Of course, you didn't notice it because you were aft.

A. They balanced the load all right, yes. They would pump out at the same time they were putting in ore.

Q. You mentioned about the only place that you had much trouble with water depth and getting in was in Toledo, but you said the Fitz had enough power that it was able to get its weight in without using the lines a lot, mostly with the engine.

A. Yes, you could hear the rub on the pellets that were spilled during the unloading of other boats. You could hear
the pellets scraping on the bottom and the bubbles coming up, but it was soft. It just rubs the bank. It happens all the time.

Q. When you were doing that, did you ever hear the engineers complain about any problems with the machinery, hot bearings or anything like that?

A. No.

Q. You mentioned that they tip ship in Toledo. Was this the same dock, the same loading dock?

A. Yes. They tipped either one.

Q. It is the one where you have the problem getting in. When they tipped ship, do you remember, did they have cargo in the boat or did they do that when it was light or empty, if you remember?

If you don't remember, that's all right. It wasn't your job, I know.

A. They generally do it after it is unloaded, you know.

Q. After it is unloaded?

A. Yes, usually.

Q. And then they put the ballast in?

A. Yes, and then you wait for the water before you leave port.

Q. Pardon me?

A. You wait for them to get it done so that it is ready to leave port, you know, so much draft.
Q. When they are tipping ship, did they ever, that you remember or any time in the loading or off-loading operation, did they ever break any of the wires on the fence rail?

A. Not that I can recall.

Q. Do you, as watchman, you relieve the wheelsman sometimes, don't you?

A. Yes, sir, at night, you know, and in the daytime you relieve a half an hour and at night, and you take care of his coffee break during the day, a half an hour.

Q. Did you ever handle the Fitz when she had a sea on her stern when you were relieving?

A. Yes.

Q. How did she handle? Was it pretty easy?

A. Yes, sir. It is a very good handling boat. It handled very good.

Q. During any of the time you were wheeling, were you in any of the shoal areas or shallow water?

Q. Did you get a chance to see how it handled or how it felt in shallow water?

A. No, sir. Generally in a following sea you had your hand on. Your automatic didn't work on a following sea.

Q. Why is that?

A. Because of sashays and what not.

Q. How much better were you able to do it on hand than on automatic when you had a following sea, sir?
A. You could keep it better.
Q. You could keep it pretty much on course?
A. Yes.
Q. How about when you had seas breaking over the deck?
Did you ever have it rough enough when you had some waters over the deck?
A. Yes. Well, when it was like that, generally one has to be around securing the galley or someplace like that. When it is rough, the watchman is generally working on the deck securing things.
Q. Does stuff roll around quite a bit when it gets rough?
A. Oh, yes, anything that it not tied down.
Q. Did she roll in rough weather when she had a following sea like that? Would the vessel roll any?
A. Yes, I would say it rolled.
Q. Do you have any idea how much she rolled? It was not enough you had trouble staying on your feet?
A. No.
Q. Did the sugar or anything like that come off the table if you had enough roll?
A. When you are light.
Q. Not when you are loaded?
A. Not very much, no.
Q. We talked a little bit or a few minutes ago you talked to Commander Loosmore about the lifeboat drills, and you are
pretty much a professional sailor, 22 seasons. That is a
good long time on the Lakes.

It looks like most of the crew on the Fitz, we heard
testimony that that seemed to be the boat that everybody
wanted on and seniority seemed to cover it.

We have had a number of people on the Fitz like yourself
that had been on the Fitz, and they have testified before us.
There seems to be some difference in opinion concerning these
lifeboat drills, and it kind of bothers me, because if you
ever have to use the survival equipment, it is kind of tough
to learn in just a few minutes that you have left or available.

Having been around here a little bit lately and getting
to know some of the people, I can't believe that people would
not tell the truth, and I think that it is just a mis-
understanding.

You said you didn't have many lifeboat drills.

Did you mean you didn't put it into the water? What
did that mean to you?

A Well, swinging the boat down, taking covers off and
going her ready to launch.

Q Getting her ready, but it is still a drill even though
you didn't or don't put it in the water?

A Yes.

Q That just was not done very much on the Fitz, you
seem to indicate. Is that true?
Well, yes. It did not happen too often, no.

Q. Not much more than once a month, I thought you said.

Well, not every week. You said not every week?

A. Not every week.

Q. Did you go so far every week that people got together and talked about the equipment, even swinging out the boats? Did you do that once a week? Did you discuss your jobs?

A. It has been a while back. You get confused from one boat to another sometimes.

CAPTAIN WILSON: Well, a lot of things skip your mind. That is all I have.

REAR ADMIRAL BARROW: Captain Zabinski?

EXAMINATION

By Captain Zabinski:

Q. Mr. Larson, what did you do before you started going to sea? You haven't been going to sea all your life. What did you do before that?

A. I worked in a factory in Milwaukee. I was in the Army. I did commercial fishing for a while also.

Q. You have had good seniority with the Oglebay-Norton Company?

A. Yes, about nine seasons.

Q. That gives you pretty well a choice of the boats you would want to go on; is that right?

A. Yes, sir.
Q. In your testimony you indicated that it was during those
Detroit riots, you thought it was around that year, you
thought one of the hatches was damaged pretty badly because
of the bucket dropping. Do you know what hatch that was?
A. It was around the center. That is all I know.
Q. What hatch would that be?
A. I don't know. A rough guess would be around 10.
Q. Around where?
A. Around 10 or something like that.
Q. Was there only one or more?
A. Only one: It dropped down. It had the header,
flattened it out and broke the fence rail, and it damaged the
dock, dented it.
Q. Do you think it affected any vents? Did it touch any
vents, do you remember, in that area?
A. I don't think it touched a vent.
Q. Have you ever seen an inflatable lifeboat blown up?
A. Only in pictures.
Q. Have you ever received any training in how to inflate
one of those rafts?
A. Oh, yes.
Q. When was that?
A. Well, every spring generally they demonstrate, the
Coast Guard comes aboard and demonstrates.
Q. The Coast Guard demonstrates it?
A. Yes.
Q. Are you usually there during fit-out?
A. Yes, sir.
Q. Do you recall if you received any instructions in the inflation of liferafts or equipment, last year or this year, '75?
A. Generally every spring you get it, you know. In fact, one year they brought these like movie cameras and showed the pictures of the thing inflating itself and moving and floating in the water.
Q. Who brought that out?
A. It think it was the Coast Guard.
Q. What port was that?
A. I think it was Superior, on the Fitzgerald when we laid up.
Q. Do you know if the company had any special training in the use of liferafts, inflatable liferafts?
A. No.
Q. Did you ever receive any company training pertaining to inflatable liferafts?
A. Just explaining on deck, and then you have the diagram of the thing.
Q. Who explained it to you?
A. Well, one of the mates.
Q. One of the mates?
A. Yes.
Q. Do you ever recall receiving such instructions on the Fitzgerald?
A. Yes, sir.
Q. What year was that?
A. Generally every spring they explain how this life-saving equipment works.
Q. How would you launch one of those?
A. It would almost take two guys to lift it up high enough to throw it over the railing.
Q. And then what would you do?
A. Then it inflates itself. I think you have to jump in the water and crawl in it.
Q. When it hits the water, it inflates itself. Suppose it doesn't inflate when it hits the water.
A. There is a line or a painter. You can jerk it, and the CO₂ blows it up.
Q. Do you know what equipment is on those liferafts?
A. I don't think there is any equipment inside of them, except a ladder for crawling in.
Q. Do you think it would be a good idea for seamen to see this equipment inflated and get the training, more training in it?
A. Yes.
Q. Mr. Larson, I am like Captain Wilson. I am a little
confused on the lifeboat fire drills, and, as you know, the Fitzgerald is lost.

You probably knew a lot of the people on there, if not all of them.

A. Yes, sir.

Q. We are trying to find out what happened.

We have conflicts in testimony, and you are here to help us.

How often did you have lifeboat drills on the Fitzgerald? Was it once a year or twice a year?

Why won't you tell us?

A. Geez, I know when Paulson was there we had them maybe every five days, and McSorley was very lenient on it. He didn't have it very often.

Q. What do you mean not very often?

A. I can't say just how often.

Q. Don't you remember or what?

A. No. How often he had them, I can't say.

Q. Mr. Larson, the Fitzgerald was going along; she had a northwest wind or just about northerly, west by northwest; the wind may have been from 50 to 70 knots; the sea 25 to 30 feet high.

We had 29 capable people according to testimony. The ship suddenly sinks. It had been in trouble.

Captain McSorley had called the Anderson and said he
was taking on some water and had a list.

The pumps were going. The fence rail was down or broke off, and she had a couple of vents missing.
The ship suddenly disappeared; 29 people are lost.
To date we have not found anybody, not anybody.
We found the lifeboats, the inflatable liferafts.
We found life rings. We have found life jackets, but we haven't found a soul.

Why?

Q. Well, if it's bad weather, everything was dogged down, all the doors were closed, to keep the seas from washing in, I suppose.

A. The ship was in trouble for about three and a half hours, since the first time that Captain McSorley had called, three and a half hours, until she suddenly disappeared.

Why wasn't the crew prepared for this eventuality, in your opinion?

A. It must have been unsafe on deck, and why they didn't send a Mayday, this must have happened so quick that she went down like a sinker and tipped over, I don't know.

Q. Do you think she might have capsized?

A. Yes, sir, she could have. With these seas, you would hold the doors shut and nobody could have gotten out.

Q. Do you think you could have launched a boat in the sea condition that I just described?
Q. Why not?
A. I don't believe you could put a boat in that water.
Q. Why not?
A. Because those seas would have damaged it or something. It would tip her over, but I don't think you could handle a lifeboat even if you got it in the water. I don't think you could have boarded it or something. I don't know.
Q. Let's say you were faced with this situation of having to leave a vessel suddenly, what equipment would you favor on there? What equipment would you use? Life jackets? Life rings? Inflatable liferafts? Lifeboats? What would you use?
A. Probably the liferafts.
Q. Why? Why would you use that?
A. After it is blown up, it's got a cover over it and you would be out of the water. You would be protected from the exposure. That time of year, it is very important.
Q. How long do you think you would last in water that was 51 degrees temperature and about 35 degrees air temperature?
A. I wouldn't last very long. Probably a half an hour or so.
That's about all I would last.

CAPTAIN ZABINSKI: That's all I have.

EXAMINATION

By Rear Admiral Barrow:
Q. Mr. Larson, other than the damage to the hatch coamings
which you have just talked about a few moments ago, do you recall any other damages that occurred during the period of time that you were on the Fitzgerald?

A. One time we backed into the anchor chain at the dock.

Q. Backed into the anchor chain at the dock?

A. Yes.

Q. You are talking about the stern anchor?

A. Yes.

Q. What happened as a result of that?

A. We changed a couple of buckets.

Q. When was that?

A. That must have been in 1972.

Q. You had to tip ship to do that?

A. Yes, they tipped ship.

Q. What port was that?

A. Toledo.

Q. Any other damage of any significance that you can recall, any groundings and so forth?

A. Not to my knowledge. You always rubbed or bent a plate or so, but not to my knowledge. We didn't do any serious damage.

Q. Did you have anything to do with putting the hatch covers on after the Fitzgerald had completed her loading?

A. Yes, sir. The watchman took care of that and they put a maintenance man on it and he does that work now.
Q. When were the hatch covers put on?
A. During the loading; during the loading, you put most of them on.
Q. You put most of them on during the loading?
A. Yes.
Q. Did you always finish putting the hatch covers on before the ship left the pier?
A. Most of the time, and just about all of the time when I did it. I could get them on almost all the time before or just when we were leaving the dock.
Q. You said about all the time. Did you ever leave the port with hatch covers off after loading?
A. They got them on before we got out in the Lake, yes. Before you even got out of the harbor, which is probably ten minutes, you would have them all on.
Q. What did you use to put the hatch covers on with?
A. They have a deck crane.
Q. Would you go along and lift them up and set them over the hatch coamings?
A. Yes, and then they were pinned, so they were guided. It is guided down with a rod and they go and place so the clamps go on in the same place every time.
Q. What did you do with the deck crane once you had finished putting the hatch covers on?
A. It was stored in front of 21 hatch after.
Q. In front of what?
A. Between 21 and 20 hatches, in the turnbuckles. They were secured to the deck with heavy-duty turnbuckles, four of them.
Q. You had padeyes in the deck?
A. Yes, sir.
Q. How many of them, four?
A. Four, four heavy-duty turnbuckles.
Q. What size wire did you secure the deck crane down with?
A. These turnbuckles. You just tighten them up.
Q. There was no wire at all?
A. They was mounted right on the crane. You just put them on deck and put a bolt through there and tightened them down.
Q. Was there a place on the deck that you could secure the crane forward, up close to the forwardhouse also?
A. Yes, sir, I believe there is.
Q. To the best of your recollection, was this crane also secured back on the after deck?
A. Yes, sir.
Q. Had you ever seen it at any time during your service on this ship secured forward by a No. 1 hatch or somewhere up in that location?
A. The reason they never put it up forward is because when he landed them up at the Soo or something, the booms have to
go out too far. The landing booms, where they put a man
ashore, go out too far. They have a landing boom and they
put a man on the dock with the rope falls, you know.
Q. Your testimony is that if you stowed it in the forward
position, it would be in the way of the landing boom?
A. You would have to move it every time you used it.
Q. So your testimony is that in winter or summer, that the
deck crane is always secured in the after position?
A. On this position, it was, yes.
Q. Is this true of the other boats?
A. No, the Armco, you could put the crane up forward, but
you would have the same trouble.
Q. How many ships have you sailed on the Lakes, Mr. Larson?
A. How many different ones?
Q. I beg your pardon?
A. How many different ones?
Q. How many different ones? Straight deckers.
A. Probably six.
Q. About six?
A. Yes, six or seven.
Q. In all of those, you have never known of a practice
where the deck crane was stowed in the forward portion?
A. Well, I think U.S. Steel carried a crane up forward,
but then you would have to move it when they swung them out.
Q. It was carried up there all the time or just in the
wintertime?

A. I think they carried it on the forward and all the time when I was there, yes.

Q. Mr. Larson, you have characterized Captain McSorley as a good skipper. Are those your words?

A. Yes, sir, he was a very good seaman. He could handle a boat very well.

Q. Were you not concerned about not having boat drills?

A. Well, you go through this process and you know how to do it. I guess it is supposed to -- if you have it more often, you get faster at it.

Q. What do you think the purpose of a boat drill is?

A. To be familiar with the equipment to save your life with.

Q. Don't you think that a good skipper would carry out drills to acquaint the crew with their responsibilities to be carried out in an emergency?

A. Well, that is true, because sometimes you have new men and they should know their job.

Q. We've got conflicting testimony, as we have said now twice. Yesterday we had two witnesses who testified to us under oath that drills were held weekly on the Fitzgerald and that they carried out instructions and that the Master of the Fitzgerald logged these things faithfully. Your testimony and others has been that Captain McSorley did not routinely carry out fire and boat drills at
sea. We have a dilemma.

Do you think that these other witnesses who testified that boat drills were held weekly were lying?

A. This is my knowledge that I know we didn't have them very often. I can't say just how often, but we didn't have it very often.

Q. I think it is a very important part to resolve and to think back as closely as you can and tell us if you still persist in saying that no drills were held on a routine basis. Is that your testimony?

A. Yes, I would have to leave it like that.

Q. Is that your testimony?

A. Yes.

REAR ADMIRAL BARROW: Any other questions by the Board?

(No response.)

REAR ADMIRAL BARROW: Counselor?

MR. MURPHY: I have no questions.

REAR ADMIRAL BARROW: Interested parties?

(No response.)

REAR ADMIRAL BARROW: Mr. Larson, before we let you go, we were questioning you at length about a number of things that you had knowledge of.

I will ask you at this time if there were any matters that you have not brought to the attention of
the Board which were not elicited by our questions which
might be of use to us in determining the cause of this
casualty.

I will ask you to tell us now, do you have
anything further, sir?

THE WITNESS: I can't think of anything.

Of course, it has been two years since I have been over
there. It was a good ship, and it was well made. It
got in trouble, that's all.

REAR ADmirAL BARROW: You have nothing further?

THE WITNESS: No.

REAR ADmirAL BARROW: You are excused and
cautioned not to discuss your testimony with others
other than counsel before the conclusion of this
investigation. You are excused.

(Witness excused.)

REAR ADmirAL BARROW: We'll take a five-
minute recess.

(Recess had.)

REAR ADmirAL BARROW: Let the record show we

Commander Loosmore, continue.

COMMANDER LOOSMORE: The Board calls

Mr. Hilson. Will you raise your right hand?
DONALD HILSEN

was called as a witness and, being first duly sworn, testified
as follows:

EXAMINATION

By Commander Loosmore:

Q. Would you please state your name, address and
   occupation?
A. My name is Donald Hilsen, and I am a Wheelsman on the
   Middletown. I live in Duluth, Minnesota, 1822 Vermilion
   Road.

REAR ADMIRAL BARROW: Mr. Hilsen, the purpose
   of this Board is to investigate and determine as closely
   as possible the cause of the sinking of the SS Fitz-
   gerald which occurred on 10 November 1975.

   We, as you know, have no survivors to question.
   We have recovered no bodies. We have found a lot
   of debris.

   Our general procedure has been to interrogate as
   many people as we can who sailed on the Fitzgerald and
   who know something about the ship and something about
   the people who did sail the ship.

   We will ask you a number of questions here, and I
   will ask you to answer those questions as clearly and
   as concisely as you can, not volunteering or extending
   your remarks, but as close as you can to what has been
asked of you.

I will ask that you speak clearly and distinctly
so that the reporters can get it down.

Commander Loosmore?

By Commander Loosmore:

Q    Do you hold a Coast Guard Merchant Mariner's document?
A    Yes, I do.

Q    Do you have it with you?
A    No, it is at the hotel.

Q    And when was that issued?
A    I believe it was 1970. I am not positive of the date.

Q    Where?
A    I am pretty sure it was Duluth.

Q    What are your qualifications under that document?
A    AB and food handler. No. I don't have a food handler's,
a wiper and an AB, 12 months.

REAR ADMIRAL BARROW:    Twelve months?
THE WITNESS:    Yes. That is what is
written on there.

CAPTAIN ZABINSKI:    Great Lakes?
THE WITNESS:    Great Lakes, yes.

By Commander Loosmore:

Q    Do you hold a Merchant Mariner's license?
A    No.

Q    How old are you?
A  Thirty-three.
Q  And how long have you been sailing?
A  I started in '64.
Q  And have you been sailing continuously since '64?
A  No, I have not.
Q  How many years' experience would you say you have since '64?
A  Total time would probably be about three and a half years.
Q  And of those three and a half years, how many of those has been spent on the Great Lakes?
A  All of them.
Q  Did you ever sail on the Fitzgerald?
A  Yes, I did.
Q  When was the last time that you did that?
A  That was last year from October 28th, I believe, when we laid up.
Q  January 28th of '75?
A  Yes, of '75. That was about four months' time.
Q  And had you been on the Fitzgerald at any other time?
A  No, I had not.
Q  What was your job on the Fitzgerald in '74 and '75?
A  I was a watchman.
Q  What were your duties as watchman?
A  Well, general maintenance of the ship, maintaining, keeping it clean, handling the winches and taking groceries
aboard, standing a ladder watch.

I was on the four to eight watch. That is about it.

Q. Did you have anything to do with the deck equipment or machinery?
A. Oh, yes.

Q. Specifically the hatches or vents?
A. Well, I did put the hatches on once or twice if I recall correctly.

I think we were a boatswain short, and we had the watchman do it.

Normally, it is the boatswain's job. The vents, I really can't recall if I had anything to do with the opening or closing. I can't recall that.

Q. Do you know anything about those vents?
A. Well, they are supposed to be closed when the ship is loaded, and when taking water in and out they are opened and closed as need be.

Q. What do you mean, they are supposed to be closed? Is there an instruction that says that?
A. Not that I know of.

Q. What makes you say they are supposed to be closed?
A. Well, I was told they are to be closed. I probably am making an assumption I shouldn't.

Q. Were you told by someone to close them?
A. Like I say, this is about the twenty-fifth boat I have
been on. That is up to that time.

I can't recall. One boat gets to be like another.

If someone specifically told me to close or open the vents,
I can't recall.

Q  Well, you must have had some basis for your statement
that the vents were supposed to be closed. Why? Why are
they supposed to be closed?
A  Well, I would imagine if they weren't closed, the water
could get in.

Q  Do you recall on the Fitzgerald last year whether there
was somebody assigned, not you, but somebody else to open and
close them, depending on what was going on?
A  That is standard procedure on the boats that I have
been on and I can't say that this was any different.

Q  You say you have been on 25 boats. What companies?
A  Approximately 25 boats.

Q  Approximately 25 boats. What companies have you
worked for?
A  Well, U. S. Steel, Republic, Bethlehem, and there are
about four or five or six different companies.

Q  Are you presently working?
A  Pardon me?

Q  Are you presently working?
A  Yes, I am on the Middletown.

Q  What company is that?
Columbia Transportation.

Q. Do you know offhand whether or not the vents are opened or closed on the Middletown?

A. It is standard procedure.

Q. Who does that?

A. Well, it is assigned to a deckhand or the boatswain. One of the people would take care of it. The boatswain may do it himself or tell a deckhand to do it.

Q. What was your abandon-ship station while you were on the Fitzgerald, do you remember?

A. My abandon-ship station was, I believe, the painter, sea painter.

Q. On which boat?

A. Fitzgerald.

Q. On which lifeboat?

A. Number one. I couldn't be positive on that.

Q. Where was the painter stored, do you recall?

A. In the bow of the boat.

Q. Did you have to go into the lifeboat to get it?

A. Normally the cover is taken off. Now, the cover is taken off of the forward part so the painter can be let out. As to whether or not I actually did let out the painter, I can't say for certain. I can't say for certain that drills were never held on there, but I can't say that I did it routinely or on a routine basis.
Q. Do you remember having any drills at all?
A. I can't remember having any drills, but, as I say, I can't say it was an impossibility that a drill was not held. I don't recall.

Q. Where is the painter led to?
A. The painter is led outboard to ship and out on the bits.

Q. Do your duties as watchman include sounding any tanks?
A. There again, I may have sounded, but normally it was the job, I believe, of the boatswain or they would assign a deckhand.

Q. Did the Fitzgerald have inflatable liferafts?
A. Yes.

Q. Where were they located?
A. There was one forward and one on the fantail, if I recall.

Q. How about a life jacket? Were you assigned a life jacket?
A. Yes.

Q. Your very own?
A. Yes.

Q. Where was it?
A. Stored in the room -- there is a little compartment that the jackets are stored in.

Q. What kind of a jacket was it?
A. Well, an orange life jacket.
Q What was the material inside it?
A The material inside it, I don't know what the material inside it is composed of.
Q How is it shaped? Do you put it on like a coat?
A Yes, it was like a coat.
Q Did it have cork inside it?
A It may have, I don't know.
Q Do you think that it is a pretty important piece of equipment?
A Well, it is Coast Guard approved, so yes, it is an important piece of equipment, and I should probably know what it is composed of.
Q Are you a life boatman?
A Yes.
Q Do you think you could launch a lifeboat?
A Yes.
Q How long would it have taken to launch one on the Fitzgerald?
A Well, I would imagine you could do it in five minutes.
Q Did your duties as watchman include anything to do with the hatches or hatch clamps during the loading or unloading?
A Well, as I said, I may have put the hatches on once or twice. Normally, I didn't have much to do with that and the clamps were mainly taken care of by the boatswains and the deckhands, although there were times when I would help them
out and clamp down, depending upon what other jobs may have
popped up or something else that had to be taken care of.
Q. Where did the ship load or unload during this period
between '74 and '75?
A. Silver Bay was the normal run. I think toward the end,
I believe we went to Eloise, Wisconsin, once or twice, the
last few trips.
Q. Is the fall a good weather or bad weather time?
A. The fall is a bad weather time.
Q. Did you have any bad weather on any of those trips?
A. I can't really say it was anything unusual. It was
just normal bad weather.
Q. Did you have any that took you extra long?
A. Oh, yes, we were deayled a number of times and anchored
and waited the storms out.
Q. Do you recall anchoring?
A. Yes.
Q. Specifically anchoring to wait for storms?
A. Yes.
Q. With load aboard?
A. Well, I can't really say whether we were loaded at that
particular time. I recall it because it was pretty cold and
it took a couple of hours for the anchor to hold and there
was a lot of weather and it was cold in the windlass room.
Q. What does the watchman do while the ship is anchored?
He will release the gear mechanisms when the mate gives
him the order and then will tighten them up when he is told to.

Q. How about when a ship is actually anchored?
A. Actually anchored, he stands by forward while you are
at anchor, whenever you are ready to go, if it starts
drifting, you are to be at hand.

Q. Who keeps track of the anchor to make sure you are not
dragging?
A. Everybody, the wheelsman, the mate and the watchman on
watch will keep an eye out for that.

Q. Where did you anchor? Do you recall where the ship was?
A. I can't be specific where it would exactly be.

Q. Would it be upbound or downbound?
A. That again, I don't recall.

Q. Was it nighttime or daytime?
A. I believe it was nighttime.

Q. How many times did you do this?
A. Well, I can think of a couple of times. I couldn't
give you the exact number of times that we anchored. I
can recall two specific occasions.

Q. On your watch as a watchman, do you kind of try and keep
track of where the vessel is?
A. Oh, yes.

Q. You know pretty much what the routes of the vessel is?
A. Yes, pretty much.
Q. During any of this bad weather, did you go up to the northern part of Lake Superior and down the east side?

A. Oh, yes, the trips would be altered to abate weather.

Q. Do you remember any of those trips specifically?

A. I'm sorry. I wouldn't be able to pinpoint exactly.

Q. Did you ever undergo an evolution known as tipping ship?

A. I can't recall that.

Q. It is your testimony that as far as you are concerned, it didn't happen?

A. I wouldn't be able to say that it didn't happen, no. I couldn't say that it did not happen.
Q. Were you out on deck on the Fitzgerald during unloading?
A. Oh, yes.
Q. Do you remember any circumstances where the ship was damaged by the unloading equipment?
A. I can't recall anything, no.
Q. Who was the master when you were on the Fitzgerald?
A. Capt. McSorley.
Q. Did you have an opportunity to talk to him that much?
A. No.
Q. Did he speak to you much at all?
A. Just hello, and that was the extent of it.
Q. Was he a talkative sort of fellow?
A. Not to me, but like I said, I had no cause to have any conversation with him.
Q. Did you spend a good bit of your watch watching the wheelhouse?
A. No.
Q. Where was your watch stood when stood?
A. It was normally stood down below, depending upon where the ship was.

You would be at the winches if you were loading, unloading or standing your ladder watch.

Under way, you had cleaning stations to maintain.

CDR. LOOSMORE: That is all I have.
REAR ADMIRAL BARROW: Capt. Wilson?

EXAMINATION

By Capt. Wilson:

Q. Mr. Hilsen, we were talking about the boat drill, and I think you brought up that boat drills weren't held very frequently on the Fitzgerald.

I believe Cdr. Loosmore asked you how long it would take to launch a boat, and you indicated five minutes. We have had various people in, testimony while we have been here, and quite a number of people have indicated that it could take as long as 10 to 15 minutes.

I think we even heard maybe one-half hour.

A. Five minutes is with a crack crew. That is a little fast. I would say it would take longer than five minutes.

Q. What kind of launching did the Fitzgerald have?

A. Boy, there you go again. I start thinking back to specifics exactly, and one boat becomes just the same as another. It becomes a haze.

Q. During your period that you have been sailing, how many times have you been in a boat actually in the water rowing?

A. How many times? Well, I couldn't be specific on the number of times. I would say --

Q. Just roughly, approximately. Was it one, five or 10?

A. Well, probably 10 times.
Q. Were these the boat drills held by the ship?
A. At fitout or mid-season inspection. I believe U. S. Steel -- I don't know if they are still doing it, but at mid-season we would launch boats, and at the fitout season we would.

Q. For fitouts, you had many times where you had some new people that hadn't worked together. About how long would the boat drill take then to put the boat in the water and be away from the ship, would you guess?
A. Well, say we are just starting out at fitout. We are not really concerned about the speed.

You get your job down right first of all, and then you can become more efficient as time goes on.

I would say a half hour sounds good.

Q. About a half hour with a new crew?
A. Yes, and getting all the kinks out.

Q. Then by, say, mid-season, and I think you mentioned that it was on one of the U. S. Steel boats, where you had put the boat in the water, by mid-season and probably by that time the crew had worked together and got to know each other; how long then would it take, approximately?
A. Approximately 15 minutes, but there again we are not really saying how fast it can be done.

If the timer is on and you want to see how fast
you can do it, I am sure you can get it down markedly; but five minutes was a little too fast.

Q    You haven't been sitting around with a stopwatch, and I am sure the times are fairly rough.

Based upon your experience on the Fitzgerald, with the limited number of boat drills there, did you know, on the Fitzgerald, did you know your job as far as boat drills went?

A    Well, as I said before, I took care of the painter. I can't recall if that was my specific job or not on the Fitzgerald.

Q    I don't particularly want you to recall your job now, but at that time, did you feel that if anything happened, you would know what to do?

A    Definitely.

Q    Did you feel that the other members of your boat, people who were assigned there, did you feel that they would know?

A    Yes.

Q    Did it ever, because of the lack of drills, did it ever cause you to wonder if other people couldn't do their job, what would happen to you in case --

A    I was not concerned about that, because, as I say, once you have launched one or seen it done, it is quite easy.
As far as someone not showing up for a specific job, everybody knows. It is not that involved where someone else can't fill in for another person.

Q. Did you ever wonder whether the mates knew their job? They had been on the ship quite a long time, and apparently they hadn't had a great number of drills. Did it ever bother you to think they wouldn't know what to do in an emergency?

A. I felt nothing of the sort, no. I felt secure. They are mates, and they passed tests, and they put their time out there, and they knew what was going on.

Q. How often do you have boat drills on the Middleton?

A. Weekly.

Q. How often do you put the boat in the water?

A. At fitout we did it at Superior.

Q. Did you get a chance to go in the boat then?

A. Yes.

Q. Did everyone get a chance to go in the boat?

A. Yes. We took a couple of trips, and everybody took a turn at it.

Q. Were the Coast Guard inspectors there at the time?

A. I believe they were, yes. No, like I say, I can't recall if there was that much ice where we did launch.

   I am pretty positive we did launch.

Q. Did they seem to be happy with the drill? Didn't
they make you do it again?

A. No, we seemed to pass it all right.

Q. Did you have any other people on the Middleton who had been on the Fitzgerald before?

A. Yes. There was a deckhand on there last year when I was on there, and the second assistant was on there last year when I was on there.

Q. Did they seem to know their jobs during the boat drill?

A. Yes. Are you speaking --

Q. Of the people who had come over from the Fitz?

A. I am aboard the Middleton now, and they know their job now.

Q. Even early, before the season, before they had a lot of boat drills?

A. Certainly.

Q. You mentioned one of the individuals. Was that, did you say, was that an ordinary seaman?

A. Yes. He is a deckhand. He is on the Middleton. I believe he put a year over there last year.

Q. Was he a fairly young fellow, not too many years of mileage?

A. He is about my age.

Q. And how long did he sail?

A. He has about 10 years in.
Q. What is his name?
A. Gary Siemsen.
Q. On the Fitzgerald, if you will recall, were the
gripes on the boat kept always secured?
A. Pardon me?
Q. Were the gripes on the boat kept secured?
A. Yes.
Q. Did somebody check them periodically to make sure?
A. I didn't. I wouldn't. I imagine somebody would every
now and then, but as far as naming names, I wouldn't be
able to.
Q. How about the tunnel doors; were they generally left
open or closed?
A. Generally left open. Now, again, I can't be specific,
but normal procedure on almost all the boats, the tunnel
doors were left open.
Q. This is generally pretty true on all the boats of
the fleet?
A. Yes.
Q. You said you sailed for U. S. Steel.
How about for U. S. Steel?
A. As far as I can recall, the doors would be left open.
Q. Why is that; do you know?
A. Is there a reason for it?
Q. I couldn't tell you.
Q. It seems like the company spends a lot of money to buy those heavy doors.

Wouldn’t you get a lot of air into the compartments forward? The tunnels are not heated, are they?

A. No. They are not heated. I can’t really give you an explanation.

CAPT. WILSON: That is all I have.

REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:

Q. Mr. Hilsen, you indicated that the lifeboat station was the No. 1 boat. Was that on the port or starboard side?

A. There again, I can’t be specific. I always get that mixed up.

Q. Mr. Hilsen, who are you kidding? Any boat you ever went on -- how many ships did you say you were on?

A. About 25.

Q. Every ship you were ever on, Boat 1 was on one side, and Boat No. 2 was on the other side, and don’t try to kid me.

A. I am not.

Q. Don’t tell me you were on 25 ships and you don’t know where No. 1 boat is.

This is a serious matter here, and you have been evasive on every answer you have given, and I am fed up.
Now, you answer. What side is No. 1 boat on?

A. Port side.

Q. Are you sure of that?

A. No, sir, I am not.

Q. You're damn right you are not. You are not sure about anything. I don't know where you got your lifeboat certificate, but I will be darned if I don't check up on it.

Who are you kidding? What boats were you on?

You say you have been sailing since '64. What boats have you been on since '64?

A. Well, we will go back to the Fitzgerald, and before that was the Mauth, and I have been on the Armco. I have been on a number of them.

Q. Mr. Hilsen, I am not going to dignify you by asking you another question.

There were 29 people, and you probably know a lot of them that are down in the bottom of Lake Superior. You have to live with your conscience.

We are here, and we have been called here to see if we can help this Board. You have been evasive, and if you don't know where No. 1 boat is on any ship in this lake, fellow, you are in the wrong business.

CAPT. ZABINSKI: I have no further questions, Admiral.
EXAMINATION

By Rear Admiral Barrow:

Q. As closely as I can tell, when you first started testifying, you said that you can't recall any boat drills being held on the Fitzgerald; is that correct?

A. That is correct.

Q. I have testimony here taken just yesterday from two people.

In that testimony it was stated by one person, "We had boat drills once a week. It was noted in the log," in describing the boat drill.

Another witness: "We had weekly drills, and these drills were so noted in the pilot house log."

Both stated that in testimony under oath. You testified here that you had no boat drills on the Fitzgerald?

A. None that I can recall.
Q. You persist in that?

A. Yes, sir.

REAR ADMIRAL BARROW: Mr. Murphy?

EXAMINATION

By Mr. Murphy:

Q. Your record, Mr. Hilsen, shows that you were on the Fitzgerald from 10/9 to 1/28.

CAPTAIN ZABINSKI: What record is that?

MR. MURPHY: I have the employment record before me, sir.

I am just as concerned about this as you are.

I want to say for the record that the entire testimony as it has come in today is just as much a surprise to us as it is to the Board.

We are just as much concerned at getting to the bottom of it as the Board is and I am --

By Mr. Murphy:

Q. Mr. Hilsen, do you say on oath that you never had a boat drill during the period that you were aboard the Fitzgerald with Captain McSorley?

Are you telling these people that?

A. As I said before, I can't recall, I can't say that there never was one held, but as far as I recall there was none.

Q. But you are saying, then, that they were not held on a
regular basis; is that what you are saying?

A. Yes, that is true.

Q. And you are saying that under oath?

A. I am saying that.

I can't recall one being held.

MR. MURPHY: I don't have any further questions.

REAR ADMIRAL BARROW: Any by the Board?

(No response.)

REAR ADMIRAL BARROW: Do you have anything further to add to your testimony?

THE WITNESS: Well, I apologize for any shortcoming I may have shown here.

I have tried to be helpful.

REAR ADMIRAL BARROW: I think the point, Mr. Hilsen, is that you have qualified everything that you have said before this Board by you can't remember or you can't recall, just about everything that you have said.

You are excused.

You are cautioned not to discuss your testimony with other than counsel before the conclusion of this investigation.

THE WITNESS: Thank you.

(Witness excused.)
REAR ADMIRAL BARROW: At this time we will adjourn to reconvene at 9:30.

(Thereupon, the investigation was adjourned to reconvene the following day, Saturday, December 13, 1975, at 9:30 a.m.)
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DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

In the Matter of:

Marine Board of Investigation
Sinking of the SS Edmund Fitzgerald
on Lake Superior 10 November 1975

31st Floor
Federal Office Building
1240 East Ninth Street
Cleveland, Ohio

Saturday, December 13, 1975

The above-entitled matter came on for
further hearing, pursuant to adjournment, at
9:30 a.m.

BEFORE:

Marine Board of Investigation:

Rear Admiral Winford W. Barrow, Chairman
Capt. Adam S. Zabinski, Member
Capt. James A. Wilson, Member
Cdr. C. S. Loosmore, Recorder
APPEARANCES:

On behalf of The Oglebay-Norton Co.:

Jaeger & Murphy, by
John T. Jaeger
Thomas O. Murphy
Richard C. Binzley
2700 Terminal Tower
Cleveland, Ohio 44113

and

Arter & Hadden, by
Robert C. McCreary, Jr.
1144 Union Commerce Building
Cleveland, Ohio 44115

and

Bradley, Eaton, Jackman & McGovern, by
Warren A. Jackman
135 South LaSalle Street
Chicago, Illinois 60603

On behalf of Cargo Aboard the SS Edmund Fitzgerald:

Ray, Robinson, Keenen & Hanninen, by
Roman T. Keenen
1550 Union Commerce Building
Cleveland, Ohio 44115
APPEARANCES (Continued):

On behalf of Seafarers' International Union,
James Pratt and John Poviach:

Ned L. Mann
Victor G. Hanson

On behalf of Marine Engineers Beneficial Association:

Green & Lackey, by
Merritt Green II and
Gerald Lackey
PROCEEDINGS

9:37 a. m.

REAR ADMIRAL BARROW: Let the record show we reconvened at 9:37 a. m. Counsel for Oglebay-Norton present.

Cdr. Loosmore, call your next witness.

CDR. LOOSMORE: The Board calls Cdr. Mania.

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DANIEL C. MANIA was called as a witness and, having been first duly sworn, testified as follows:

EXAMINATION

By Cdr. Loosmore:

Q. Would you please state your name, rank, service number and duty station?

A. Daniel C. Mania, Commander, U. S. Coast Guard, Service No. 6416, and I am currently assigned to the Marine Inspection Office in St. Ignace, Michigan, as the officer in charge.

REAR ADMIRAL BARROW: Cdr. Mania, the purpose of this Board is to investigate into the sinking of the SS Edmund Fitzgerald on 10 November 1975. It is my understanding we called you for the limited purpose of presenting to the Board what information
or knowledge you have concerning this sinking and
the boat's equipment.

I will ask you to respond as concisely as you
can to the questions put to you by the Board and
by counsel.

Since we don't have a microphone, please speak
slowly and distinctly and as loudly as you can so we
can get it on the record.

THE WITNESS: Yes, sir.

REAR ADMIRAL BARROW: Continue, Cdr. Loosmore.

Q. Cdr. Mania, how long have you been assigned to the
Marine Inspection Office in St. Ignace?
A. Since September 1973.

Q. Have you had any prior assignments in the Marine
Inspection?
A. Yes. Prior to my Marine Inspection assignments, prior
to the current one, I was assigned to the Marine Detail in
Vietnam in 1970, and I spent a year there.

I was also assigned to the Marine Inspection Office
in San Juan, Puerto Rico between '67 and '69.

I was also assigned to the Marine Inspection Office
in Buffalo, New York, from 1961 through 1965.

Q. Have you had any other assignments on the Great Lakes?
A. Yes; I served as executive office of the Coast Guard
Cutter Tupelo. She was home ported in Toledo, Ohio, between
1965 and 1967, and I also served as Commanding Officer of
the Coast Guard Cutter Mesquite out of Sturgeon Bay,
Wisconsin, between 1971 and 1973, just prior to my report-
ing to St. Ignace.
Q. Do you hold a Coast Guard Merchant Mariner's license
or document?
A. No, I do not.
Q. In connection with your duties in Marine Inspection,
St. Ignace, were you requested to examine the lifeboats
which were recovered from the debris of the Fitzgerald?
A. Yes, sir, I was.
Q. Did you conduct such an examination?
A. Yes, I did.
Q. Cdr. Mania, I have here a letter from the mailing
address: Commanding Officer of Marine Inspection Office,
St. Ignace, Michigan, 2 December 1975.
Do you recognize this letter?
A. Yes, I do. I prepared this as the report of my inspec-
tion of the life rafts which were recovered from the
Fitzgerald incident.

CAPT. ZABINSKI: Life rafts or life-
boats?
THE WITNESS: I'm sorry. These are
lifeboats; that is correct.
CDR. LOOSMORE: Sir, I would like to
1965 and 1967, and I also served as Commanding Officer of
the Coast Guard Cutter Mesquite out of Sturgeon Bay,
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Fitzgerald incident.

CAPT. ZABINSKI: Life rafts or life-
boats?

THE WITNESS: I'm sorry. These are
lifeboats; that is correct.

CDR. LOOSMORE: Sir, I would like to
request that this three-page letter filed 5943,
St. Ignace, 37/75, from Cdr. Daniel C. Mania to
Marine Board of Investigation, Subject: Report
of Condition of Recovered Lifeboats, be marked
Exhibit 97 for identification.

REAR ADMIRAL BARROW: What is the date on
it again?

CDR. LOOSMORE: 2 December 1975.

REAR ADMIRAL BARROW: Mark it so for iden-
tification.

(Exhibit No. 97 was marked
for identification and made
a part of the record.)

By Cdr. Loosmore:

Q Cdr. Mania, is it your statement that that letter
represents the condition of the boats as you found them?

A That is correct, and this is my report of the inspection
I made on the 25th of November.

Q On the 25th of November?

A That is correct.

CAPT. ZABINSKI: Where was that?

Q Where was that?

A At the Coast Guard Base, Sault Ste. Marie, Michigan.

Q I have here a series of 12 photographs. Would you
look through those photographs for a moment and see if you
can identify them?

A. These are the photographs of the boat I examined on the 25th.

CDR. LOOMIS: Sir, I would like to request that these photographs be marked Exhibits 98-A through L.

REAR ADMIRAL BARROW: Mark them so for identification.

(Exhibits 98-A through L were marked for identification and made part of the record.)

Q. Cdr. Mania, you have in front of you Exhibit 97, which is a letter or a report of your examination, and here are Exhibits 98-A through L.

Would you examine those or have you had an opportunity to examine those photographs?

A. Yes, I looked at those this morning.

Q. All right. Is it possible to separate those photographs into those pertaining to No. 1 boat and those pertaining to No. 2 boat?

A. Yes.

Q. All right.

A. The No. 1 boat was the one that was broken just about in half. There was just a 16-foot section left, and these
first three pertain to the No. 1 boat.

Q. All right. Those are Exhibits 98-A, 98-B and 98-C.
A. And the remainder are of the No. 2 boat.

Q. All right. Now let's talk first about the No. 1 boat. Do the photographs represent what you saw during your investigation and what your letter of report reflects?
A. Yes, the conditions here are the same as what I saw and what my report covers for the examination I made on the 25th of November for No. 1 boat.

MR. MURPHY: Pardon me, Mr. Chairman, but may we establish for the record whether or not this witness knows who took those photographs and whether or not they were taken at the time of his examination?

REAR ADMIRAL BARROW: Yes, we will.

Cdr. Loosmore?

By Cdr. Loosmore:

Q. Do you know who took these photographs?
A. These photographs were taken by an Air Force photographer from the photo lab at Kinchloe Air Force Base. They were taken at the Coast Guard Base at Sault Ste. Marie, Michigan.

I was not present when the photographs were taken. It was reported to me by Coast Guard personnel at the base that these photographs were taken on the 19th of November.
Q. When was your investigation conducted?

A. My examination was conducted on the 25th of November.

Q. Was the 25th of November the first time you saw the boats?

A. That was the first time I saw -- no, it was not. I saw No. 2 boat, I believe, on the 13th, but I did not examine it. I saw the boat as it laid there at the base and I did not see the section of No. 1 boat until the 24th.

I happened to be at the Coast Guard Base also, but again I did not examine it. The actual examination was made on the 25th.

Q. Where were the boats when you conducted the examination?

A. They were at the Coast Guard Base in the vicinity of the sand blasting shed that we have there.

Q. Were they within the confines of the base?

A. Yes.

Q. Having conducted an examination and having examined the photographs, is there anything about the No. 1 boat that is not included either in the photographs or in the report of your examination, which you feel is pertinent to this investigation?

A. Yes. There is one thing that may be some source of confusion on the No. 1 boat.

That is page 2 of my report. I discussed the Rottmer releasing gear. That is page 2, Subparagraph 9, right at
the top.

If I may read through this, I will explain.

Q. Yes.

A. What I say is, "The Rottmer releasing gear consisting of the hook preventer bars, lock, upper and lower guide bearings, universal joints and a complete portion of the shafting to the after-universal are present."

"The shaft is twisted and distorted. The plate attachment to the stem is in place. The hook is in the unlocked position. The release lever is torn loose from its secured position. The hold down brackets are severed."

One thing that I should have included in here, or I say, "The lock is in the unlocked position," and that is correct; that is the way it appeared in the photograph.

Q. Which is Exhibit 98-B?

A. That is correct.

One significant thing though that I did not include here is that the hook lock itself is closed, in the closed position.

The photograph shows the hook lock to be in the closed position, and my examination of the boat was the same; the hook lock was in the closed position.

Q. Yet you said that the hook was unlocked?

A. That is correct. The hook was free. Normally, with the hook lock in this position, the hook would not be able
to be moved. It would be locked and secured.

In this case, it was not.

Q. I have Exhibit 98-K which you have testified is a
photograph of a condition on No. 2 boat rather than No. 1
boat, about which we are speaking right now.

However, recognizing that difference, is the condition
you are describing illustrated on this photograph?

A. Yes, it is. This is basically the same --

REAR ADMIRAL BARROW: I think you better do

a little better job of identification here for the

record before he goes into the question.

A. The photograph that I was just handed is a photograph

of the forward end of No. 2 boat. I recognize this from

the slit stem.

This shows the releasing gear. It shows the hook

in the unlocked or free position, and it shows the hook lock

itself to be partially closed.

This is not a normal condition here.

MR. MURPHY: Can you identify that

by the exhibit on the back?

CDR. LOOSMORE: I did, Exhibit 98-K.

A. 98-K. In this position here, normally the hook lock

itself would be inside the hook lock in the secured position.

The significance here, if I might add to this point,

is that when the gear -- when your Rottmer and lever is
rotated, depending on the direction you are going, if
you would unlock this, if you would unlock the gear, the
hook would automatically fall back in place.

That is what makes this so unusual in that the lock
is closed but the hook itself is free.

Q. Cdr. Mania, would you again identify what this
photograph is?

A. Yes, this is a photograph of the Rottmer releasing
gear on the forward end of No. 2 boat.

Q. No. 2 boat?

A. That is correct.

Q. Is the gear shown in that photograph similar to the
gear existing on No. 1 boat?

A. It is the same gear, same equipment.

Q. Would you step up in front of the table here and point
out precisely to the Board, precisely which is the hook lock
section of that?

A. Yes.

MR. MURPHY: This is still

Exhibit K, is it?

CDR. LOOSMORE: This is still 98-K,
sir.

REAR ADMIRAL BARROW: I think if you stood
over in that section there and held it up so that
we can see it, it would be more helpful.
Off the record.

(Discussion off the record.)

REAR ADMIRAL BARROW: We will be back on the record.

By Cdr. Loosmore:

Q. Cdr. Mania, I have Exhibit 98-K which has some writing on it.

Who did that writing on the exhibit?

A. I just completed labeling the portions of the releasing gear during the short intermission here.

Q. Did you label the hook lock which you have discussed?

A. That's right, I have, and the hook lock is actually this piece just below the base of the hook right here (pointing).

Q. And have you labeled the hook?

A. Yes, I have. The hook extends above the hook lock itself and the lock actually secures the lower end of the hook in place when it is in the lock position.

Q. Are there any other conditions which existed on the No. 1 boat which you feel should be pointed out?

A. I think the photographs basically speak for themselves and as I said before, the conditions were the same when I looked at the boat, and what the photographs show on the No. 1 boat.
Q. The photographs of the No. 1 boat which you have identified are Exhibits 98-A, 98-B and 98-C, for the No. 1 boat; is that correct?
A. That is correct.
Q. Now, the remainder of the exhibits, 98-D through L, can you identify those?
A. Yes, sir. These are all the photographs of the No. 2 boat that I looked at.
Q. All right. Is there anything in your report which is different from the conditions which are shown on the photograph or vice versa?
A. Yes, there is. It again deals with the Rottmer releasing gear. 98-H, essentially, the releasing gear as shown in the photograph, both on the forward and aft end of the boat are in the -- the hooks are in the unlocked position.

They are free to move, but the hook lock is in the closed position.
Q. You are describing what is shown on the photographs?
A. That is correct.
Q. And to describe that, you are looking at photograph Exhibits H, I, K and L?
A. That is correct.

You have the same identical situation; the releasing mechanisms on these photographs show that this boat
was in the same condition as what we just discussed in
No. 1. It is exactly the same on both the forward
and after releasing gears.

When I saw the boat, the releasing mechanisms
were closed and locked; they were in a completely locked
position.

Q. And in a locked position, what is the relationship
between the hook and the hook lock?
A. The hook itself would be inside the hook lock
and covered by it, so that the hook would not be permitted
to move.

The hook cannot move when it is in the locked position
and behind the lock itself.

Q. So the photographs do not represent what is contained
in your report; is that correct?
A. That is correct.

Q. Do you know why there is a difference?
A. No, I don't. I can't say for a matter of fact
as to why, but I can say I did duplicate, I returned
to the Coast Guard Base on the 10th of December and I
at that time saw the proofs of these photographs.

I duplicated what we have in the photographs.

It is my opinion that to duplicate it, it would have
to be intentional. It could not be done accidental.

In other words, if you just simply rotated the
release lever, you could not duplicate this situation, because the hook would slide back into its position and be covered again by the hook.

So, in order to have a situation like this, if this were to be done --

Q. Like this, pointing to the exhibit?
A. Right, by an individual, you would have to open the hook lock by turning the release lever to the open position, and you would have to take your hook out of its normally secured position, and then go back to the lever again and close the hook lock and seat the hook back on top of the lock outside. That is the only way that this could be done.

Q. Is it your opinion that that was done intentionally at some time prior to the taking of the photograph?
A. No.

Q. Now, in your opinion, did the condition which is depicted in the photographs come about then?
A. I would say that that is the way the boat arrived at the Coast Guard Base at the Soo.

Q. Well, all right, but what caused the release gear both to No. 1 boat and on both ends of No. 2 boat, to be in that condition, in your opinion?
A. I would say that my opinion would be that there was, must have been a great stress and probably some sort of
dynamic stress, which made the hook jump out from behind
the hook lock itself; otherwise, there is nothing that
would make sense.

Q. Exhibit 98-J also has some marking on it.

Did you make that marking as well?

A. Yes.

Q. What does that exhibit depict?

A. It shows the releasing lever in the closed condition.

Q. Where is that release lever located?

A. This is located in the bilge area of the boat,
somewhere about the midships, in that area, in that
vicinity.

Q. Does that lever appear in any of the other photographs
which you have identified as No. 2 boat?

A. No.

Q. Is there anything else about No. 2 boat which you
feel is significant and is not included either in
photographs or in your report?

A. No, I don't think so. That's it.

Q. Okay. Cdr. Mania, did you have an opportunity to
examine the life rafts which were recovered from the
Fitzgerald?

A. I accompanied a Capt. Nurmeste from the Canadian
Ministry of Transport and assisted him in his examination
of the rafts.
Q. I have a six-page document entitled "Memorandum to D. S. Thunder Bay from Gene Nurmeste, Marine Surveyor, Thunder Bay."

Have you ever seen that, sir?

A. Yes; I saw that this morning also.

Q. And what is this?

A. This is Capt. Nurmeste's report of his examination of the life rafts, which was done on the 24th of November, 1975, at the Soo also.

CDR. LOOSMORE: Sir, I request that this be marked as Exhibit No. 99 for identification.

REAR ADMIRAL BARROW: Mark it 99 for identification.


It consists of six pages and is signed by Gene Nurmeste.

This memorandum has been marked 98-A -- excuse me -- 99-A through 99-G.

(Exhibits 99-A through 99-G were marked for identification and made part
Q. I have here 8 x 10 color photographs. Can you recognize these?
A. Yes. These are photographs taken at the time Capt. Nurmeste did his inspection of the rafts.

They were taken -- what actually happened, the rafts were taken by us to the U. S. Steel Great Lakes Fleet warehouse where we were able to utilize the facilities of their loft and compressor to do a complete inspection of the rafts, and these photographs were taken during that inspection.

Q. Those photographs were taken at the same time the inspection was conducted; is that correct?
A. That is correct.
Q. And who took those?
A. They were taken by Walter Materna, and he is a commercial type photographer whose place of business is at Sault Ste. Marie, Michigan.

Q. There are some markings on those photographs. Do you know who did that?
A. Yes. These photographs were labeled yesterday afternoon by Chief Warrant Officer William Madigan, who is assigned to our office and who accompanied me to Cleveland.

He also was present with me and Capt. Nurmeste at
the time the life rafts were examined.

CDR. LOOSMORE: I would like to request that these be marked as Exhibits 100-A through 100-H for identification.

REAR ADMIRAL BARROW: Mark them so for identification.

(Exhibits 100-A through 100-H were marked for identification and made part of the record.)

CDR. LOOSMORE: It does work out to be A through H.

REAR ADMIRAL BARROW: Let's go off the record.

(Discussion off the record.)

CDR. LOOSMORE: On Exhibit 97, it consists of three pages, which will be re-marked as Exhibits 97-A, B and C.

(Exhibit 97 was re-marked as 97-A, 97-B and 97-C for identification and made part of the record.)

By Cdr. Loosmore:

Q Cdr. Mania, what was the general condition of the life rafts which you found during your examination?
A. The first raft which we labeled as Raft A just for identification purposes was in good condition, serviceable and usable.

This is the raft which we were able to inflate.

These four would be of Raft A.

Q. These four are 100-A, 100-B, 100-C, and 100-D.

REAR ADMIRAL BARROW: This is Raft A?

CDR. LOOSMORE: Raft A; yes, sir.

THE WITNESS: Which Capt. Nurmeste refers to in his report as the first inflatable life raft.

After reviewing his report and from what the conditions were, as I saw them, I agree completely with what he has here in his report. It is well documented and it is well covered.

By Cdr. Loosmore:

Q. Is there anything which was significant which you found during the course of your inspection, which is not included either in the photographs or in the report?

A. No, there is not.

Q. All right.

A. Now, this second raft was, as Capt. Nurmeste indicates here, was unserviceable. We were unable to inflate the raft. We would have had to patch it in order to inflate it. There were some holes in the raft, and these
holes were as the result of being deflated by the Canadian Provincial Police, as I understand the situation. They cut the inflation tubes so that they could handle the raft.

Q  How did you obtain that information?
A  That was told to me by the yard boatswain at the Coast Guard Base in Sault Ste. Marie, to whom the rafts were turned over by the Provincial Police.

Q  Does Capt. Nurmeste mention in his report or did you of your own observation notice whether either of the water batteries for the lights had operated, or was it possible to tell?
A  Yes, the batteries were operational and I think this is one part here that he does not cover.

We, in fact, tested those batteries. We took batteries out away from the raft and we hooked up one of the light bulbs that was in the canopy to it and we dropped it in a bucket of water and it worked.

Q  You said you tested one of those batteries.
A  That is correct.

Q  Did you do one from each raft?
A  No. No; as I recall, this was just the one battery that was put in the water and I believe that we hooked up one other unit -- no, that was just as bulb. Okay.

He tested the bulb with a dry cell that was available
at the warehouse and that worked fine and he tested
a second one by hooking up the battery itself to the
bulb, removing it from the raft, and dropping it in a
bucket of water.

Q Based upon these tests, is it possible for you to
draw any conclusions concerning the lights on either one
or both of the rafts?
A I would say all of the lights were working and
functional.

Q There is mention in Capt. Nurmeste's report that
I believe a taconite pellet covered with oil was found
in the vicinity or within one of the rafts?
A That is correct.

Q Does that appear in the photograph?
A No.

Q Where was it found?
A When we finished the inspection, we were folding the
rafts back up to return them to the Coast Guard Base.
That pellet was found underneath the second life
raft, which Capt. Nurmeste refers to as a second life
raft and we call it Life Raft B.

When we folded it back up to put it on the dolly,
Mr. Madigan found that pellet on the floor of the loft,
underneath the raft or where the raft had sat.

Q What kind of oil was it?
A. Well, we assumed that it was Bunker C; it looked
like it. It was tarry and heavy. In fact, his exact
words were, "What the hell is this doing here?"

Q. Was the pellet actually contained within the raft
or was it beneath it?

A. When we found it, it was beneath the raft or where
the raft had sat.

Of course, we were moving this thing around as you
can see in all different directions, trying to get some
order to it, to put it in some kind of order.

REAR ADMIRAL BARROW: Which raft was it
under, Commander?

THE WITNESS: Under the second one,
the one that could not be inflated.

REAR ADMIRAL BARROW: That is D?

THE WITNESS: Right.

By Cdr. Loosmore:

Q. Where had these rafts been prior to -- I believe
you said you removed them to the loft?

A. They were stowed at the time of receipt at the Coast
Guard Base at the Soo, and they were stowed in the sand
blasting shed, also in the same area where the lifeboats
were.

Q. Do you know what condition they were in in storage?

A. I saw the one raft again -- well, it was prior to
the date of the 24th. This was the same one, Raft A. This was inflated when it was brought in.

Q. And Raft B?
A. Raft B was not; it was just in the same deflated condition.

Q. Do you recognize this photograph?
A. Yes. This is the location at the Coast Guard Base where the raft was stowed.

Q. Does that photograph represent the storage that you are talking about at the base prior to the examination that you conducted?
A. Yes, sir; that is where they were.

CDR. LOOSMORE: Sir, I would like to request that this photograph be marked Exhibit 101.

REAR ADMIRAL BARROW: Mark it so for identification.

(Exhibit 101 was marked for identification and made part of the record.)

Q. Cdr. Mania, again I am handing you Exhibit 101 for identification. What does that photograph represent?
A. The photograph shows a deflated raft or either one or more, possibly, but there is at least one deflated inflat-
able life raft lying here, and I recognize this as being at the Coast Guard Base at the Soo.

Q. And did you observe the rafts which are depicted in the other photographs in that same position?

A. That is correct; that is where they were when we originally arrived or went to do the inspection.

The rafts were at the base, and it simply was too cold to do them in the sand blasting shed, and also we had no means to blow them up.

This is why I obtained permission from Capt. Millradt to remove the rafts from there and take them to the U. S. Steel warehouse to do the testing.

After we finished, we returned the photographs to the Coast Guard Base.

Q. And where are they now?

A. As far as I know, they are at the Coast Guard Base.

Q. And what condition are they in now?

A. They are in a deflated condition. We deflated the raft, the one we were able to inflate, we subsequently inflated it, and we rolled it back up and assisted the Coast Guard personnel in putting it on a truck and returning it to the base.

The exact location of stowage right now, I would not be able to tell, except I have not heard anything that they were removed from the base. As far as I know,
they are still there.

Q Cdr. Mania, are you aware that there was some other debris which was found from the Fitzgerald?

A Yes.

Q And it has been reported to us that that debris was also stored for a while at the Coast Guard Base at Sault Ste. Marie?

A Yes, that is correct. That is where I did see it.

Q Is it possible or do you recall whether that was stored in the same area as is depicted in the photographs?

A It was stored in the same area, in the same general area, and some of it was in a locked shed or a locked room off of the sand blasting shed and others that they couldn't, that there simply was insufficient room for in the locked spaces, that was left in the shed space, the open area.

Q Were you ever on the Fitzgerald under any circum-
stances?

A No, I have never been aboard the SS Edmund Fitzgerald.

CDR. LOOSMORE: That's what I have.

REAR ADMIRAL BARROW: Capt. Wilson?

CAPT. WILSON: Yes, sir.

EXAMINATION

By Capt. Wilson:

Q Commander Mania, after, in the normal operation of
the Rottmer gear, after release of the boat from the
hooks, in what position would the hook and the lock be
and the lever? Can you touch on each of those?
A  If you were to launch a boat with Rottmer gear,
after the boat was launched, the release lever would be
in the unlocked position or open position.

The hook locks would be in the open position and
the hook itself would be free to move.

Q  After the release of the boat, the hooks, then where
would the hooks fall in; what position would they assume
after completion?
A  After the release of the boat, the hooks would simply
fall back into their normal position or cradle position,
because the hook lock itself would be open, so it
would just simply fall back into its normal position
of rest.

Q  When the rafts were being moved from the sand
blasting shed to the warehouse or the U. S. Steel's ware-
house, were you with the rafts or in close proximity
to them?
A  Yes, we witnessed the rafts being put on the truck
at the Coast Guard Base and while I was proceeding to get
permission, subsequent to that I visited with Capt.
Millradt. Shortly thereafter, we departed in a vehicle.
The truck followed us to the warehouse and we assisted
in unloading the rafts from the truck and taking them
to the loft.

Q It was mentioned in the report, Capt. Nurmeste's
report, that the taconite pellet that was found was
embedded in, or words to that effect, or covered with oil.

Was there a great deal of oil on that raft where
the taconite pellet was found?

A It was coated.

Q The raft was?

A No. You mean on the raft itself?

Q On the raft itself?

A Oh, yes; there was oil. It had the appearance of
Bunker C being on the raft also.

Q Did you happen to notice if there was any on the
bottom of the raft?

A It was intermittent, Captain. I really can't say
the exact location of the oil, but there was oil on the
raft.

CAPT. WILSON: That's all I have.

REAR ADMIRAL BARROW: Capt. Zabinski?

EXAMINATION

By Capt. Zabinski:

Q Is there any indication, Cdr. Mania, that the rafts
may have been occupied by anyone?

A No, sir; there is no indication of that at all.
Q. Is there any indication that any of the gear, that is the signalling gear or otherwise, may have been used on the raft?

A. No. The gear — actually one of the photos which we have here will depict the equipment that we did find. This is No. 100-D, and what we did, we simply laid the equipment that we did find on the raft floor and had the photographer take a photo of it through the front entrance, but we did not find any flares or anything there and there would be no indication as to what happened to them.

Q. You have looked at the photographs of the lifeboats and the life rafts.

Do the photographs depict the damage or distortions of the life rafts or lifeboats as you observed them on the days of inspection?

A. Yes, sir.

Q. Do you know what the circumstances of the lifeboat recovery were?

A. The lifeboat cover?

Q. Lifeboat recovery.

A. How were the lifeboats recovered or how did they end up in the Soo, if you know?

A. I can't remember that. I think as far as I know, the half boat was recovered by the Canadian authorities
and I think the boat, No. 2 boat, was found by one of
the ships and brought in, I believe one of the commercial
ships.

That is my understanding of it.

Q. On the lifeboats, let's take Boat No. 1, this was the
half boat, is that correct?

A. That is correct.

Q. Did you try to activate the releasing gear lever
on that boat during your inspection?

A. No, sir; not on No. 1.

Q. Why not?

A. Well, the whole shaft was bent completely around
and secondly I was very tempted to try it even in that
condition; but this was on Wednesday night and I realized
that after seeing the proofs, that there was a discrepancy
between the photographs which were taken prior to my
inspection and what I actually saw, so I thought it would
be best to just leave her the way she was.

That's why I did not try to do it to No. 1.

Q. But you indicate that the shafting for the releasing
gear for the section of lifeboat that is missing is also
attached; is that correct?

A. Yes. It is there and --

Q. Badly distorted?

A. Yes.
Q. Did you try the release gear, did you try activating the releasing gear on the No. 2 boat?
A. Yes.
Q. Could you describe that for us?
A. Yes. As the photographs will show, there is considerable distortion in the areas, like as an example, No. 1, where she is badly split open at the stem -- however, to answer your question as briefly as possible, the releasing mechanism and the releasing lever worked the way they were supposed to. There was no binding where I had to force it. I turned it over to the top position, and it worked.
Q. Even with the distortion as noted in the photograph depicting No. 2 boat; is that correct?
A. Yes.
Q. Did you try the batteries for both rafts, Cdr. Mania, do you recall?
A. No, not for the raft. We tried one battery, and I believe that was the battery for the exterior canopy light of the second raft, I think; but the batteries were all generally in a physical condition, appearance-wise.
Q. You indicated in your testimony that the raft was delivered, and I think you mentioned that was Raft A. That was the one in good condition; it was deflated; is that correct?
A. Yes.

Q. And yet the photograph which is Exhibit 101 indicates the stowage of the raft at the Soo; it indicates, if Raft A is in that photograph, that it is deflated. Could you comment on that?

A. I know why that was done. This information I received from the yard boatswain, Chief Warrant Officer Robbins, and the reason for that was simply a matter to make the overall raft smaller and make it easier to stow at the base.

Q. And someone at the Soo had deflated the raft intentionally?

A. Yes.

Q. And Raft A was delivered to your knowledge in an uninflated condition?

A. Yes.

CAPT. ZABINSKI: That is all I have.

EXAMINATION

By Rear Admiral Barrow:

Q. Did I understand you to say, Cdr. Mania, that there were no flares found for the boats; is that correct?

A. That is correct, sir.

Q. What kind of flares are carried in those inflatables?

A. These are limited service equipment rafts, so they would have been required to have two hand-held and
and one hand-held red flare or combinations, either one.

Normally on the lakes they carry just strictly the
hand-held flare versus a combination type.

The other flare would have been a hand-held parachute
flare.

Q. Where are they carried in the inflatable?
A. In an equipment bag. If I may show you this, I
believe this would indicate.

This is Exhibit 100-C. This is a view looking into
the raft from the forward entrance.

That is what they call a thwart for the raft, and
it is basically a stiffener, which is basically the
purpose. It divides the raft into an after section and
a forward section.

The equipment bags are secured to the floor of the
raft by these nylon webbing lines.

So it would have been in the equipment bag inside
the raft close to the center portion of the raft.

Q. Were the bags found?
A. There was one bag. That would appear to me to be
the equipment bag that they would have been carried in.

Q. No flares were found in that?
A. You should identify that.

Q. This is 100-D now.
A. And you are pointing to an orange bag on the right-hand
side?
A. Yes. You do have a pump that is stowed there also, but normally the equipment bag is carried in the position that I pointed.
Q. Is it tied off by some means?
A. Yes, sir. There are nylon web lines secured to the raft floor, and the equipment bags are supposed to be secured to these lines.
Q. The other photograph you just picked up showing the interior of it, what exhibit is that?
A. This is Exhibit 100-C, life raft A for identification.
Q. I believe that is a view of the interior of the life raft, life raft A?
A. Yes, that is correct.
Q. There seem to be some dark spots in the partition which you just pointed to there.
Would you tell me what that is, if you know?
A. No, sir; I don't know.
I made no special note of that when I was there.
Also, I don't see it covered in the report either.
You see, actually I do not have a report on these, because he was to do the survey, and we simply helped him with the legwork, et cetera, on it.
Q. You can't recall what that is?
A. No, I can't.
Q. Nor does the report cover it. I see an orange bag on the right-hand side when looking at that photograph, and also one on the left-hand side of the partition up high.

I am sorry. Strike that for the record.

They are instruction forms.

Cdr. Mania, you looked at the one boat that was substantially complete and a half boat. Could you tell me as to the material in the boat; did it look sturdy, or was it deteriorated?

A. No. The boat was in fine condition as far as the condition of the boat was concerned.

REAR ADMIRAL BARROW: Counselor?

EXAMINATION

MR. MURPHY: Thank you, sir.

By Mr. Murphy:

Q. Cdr. Mania, I would like you to clarify one point for me. It appears in the report, in the report of Mr. Nurmeste's. At the bottom it states that the raft was found to be covered in several areas with heavy bunker fuel. Also, one taconite pellet heavily covered with oil was found glued to the inside.

As I understood your statement, it was found on the bottom of the raft, or — is that correct — or would you clarify that for me, please?
A. That pellet was found on the floor of the loft after we picked up the raft and put it on the dolly.
Q. After the examination?
A. That's correct.
Q. So you are concluding from that location that it was on the underside of the raft, rather than the inside of the raft as indicated in the report?
A. I couldn't reach a conclusion such as that, because as you can see here by the photographs, we are trying to separate the raft into some kind of meaningful condition.
None of the three views noted the pellet until we finished the inspection and put the raft back on.

CDR. LOOSMORE: The witness is referring to Exhibit 100-E, Life Raft B for identification.

By Mr. Murphy:
Q. Then I will ask the question in another way.
Do you know the basis for his statement that it was found glued to the inside?
A. No; the only thing I would say is that that might have been a conclusion of his that she was stuck to the inside somehow.
Q. But, in any event, all three of you found it separated from the raft on the floor of the loft; is that correct?
A. That is correct. That's where it was discovered.
Q. Thank you. Based upon your examination of the two rafts, is there anything which in your opinion would indicate that either raft was not fully equipped at the time that it was on the vessel?
A. No.

Q. Based upon your examination of the two lifeboats, is there anything which in your opinion would indicate that those lifeboats were not in good condition when they were aboard the vessel?
A. No. The material condition of the boat was good.

Q. Likewise is there anything that would indicate that they were not fully and properly equipped?
A. Well, I would have no information on that at all because there was no equipment found in the boats when I examined them, other than the air tanks and the balls and check valves.

Q. At any rate, there was nothing from which you could reach a conclusion that they were not fully equipped when they were aboard the vessel?
A. No.

Q. Just to clarify the record, I was under the impression from my prior information that the half lifeboat was the one which was picked up by one of the vessels and that the whole boat was one that was recovered by the Canadian authorities.
Do you have direct knowledge or information on that or was that an assumption on your part?

A. That was my understanding of it, but I well could be wrong because you would have to go to the custodian and found out where the chain of receipts were from.

Q. And you don't have that information?

A. No.

Q. I am not quite sure what the significance was of your conclusion that the hook and lock, which were the subject of the discussion was the hook was in the unlocked position, and where the lock itself was in the locked position. Is that correct?

A. Yes.

Q. You made the statement that in your opinion it was a dynamic stress that made the hook lock jump out. Will you elaborate on that just a little bit for me so I understand what you mean?

A. Well, I described the normal release of a boat equipped with Rottmer gear, which is, of course, to throw the release lever into the unlocked position. This in turn will rotate the entire shaft and threw the universals up to the actual hook lock itself. The hook lock itself will turn so that it is in an open position and with the strain on the hook, the boat is automatically released.
In other words, with this type of gear, the boat can be released under tension.
Now, with the lock in the closed position, that hook is not under ordinary conditions. It is designed so that the hook cannot come out under ordinary service conditions.

Q. Under ordinary surface conditions?
A. Under ordinary service conditions.

Q. Ordinary service conditions?
A. Right.

CAPT. ZABINSKI: Excuse me, counselor. Unless the lever is rotated? Is that what you are saying?

THE WITNESS: That is correct, unless that lever is turned. Under ordinary conditions, there is no way that that hook can come out of there.

By Mr. Murphy:

Q. Would you consider the sinking of a vessel with a lifeboat attached to be a dynamic stress condition?
A. Well, if the boat was free from her grieves and cradle so that she was in a position to float, then you would have -- let me simply refer to Exhibit 98-L and then you would have a situation where there is not constant tension on the throat of the hook and the ring,
the hoisting ring, or whatever arrangement you have on
your falls, would have all this room to move back and
forth, which would present the dynamic stress on the
hook itself.
Q  Prevent?
A  No, it would present it.
Q  Present it?
A  Yes, sir.
Q  I see. So from that, would it be a correct conclusion
that the boat was not free from the gripe when this
condition occurred, if it occurred, aboard the vessel?
A  Yes.
Q  All right. Of course, as I understand it, you
indicated also that there was some change in that condition
from the time that you looked at it or in between the
time you looked at it and the time that these photographs
were taken; is that correct?
A  That is correct. The condition remained unchanged
from the time the photographs were taken until I saw
the boat for the No. 1 boat or the half boat.
The condition of No. 2 was changed in that the hooks
themselves were no longer, referring to 98-K, were no
longer outside of the hook locks; they were back in
their normal resting position with the hook lock closed.
Q  Which would mean that somehow in between the time
you looked at it and the time the photographs were taken, there were some changes made?

A. Somebody moved the lever.

Q. Just for clarification of the record, would you state the date on which you arrived, first arrived at Sault Ste. Marie Base?

A. I believe it was the 13th.

Q. And you and I together on that date went into the shed and looked at some of this equipment, some of which was under lock and some of which was not?

A. That is correct.

Q. Are you aware of the fact that a substantial part of this equipment was previously at the base and was not under security; are you aware of that fact?

A. I am under the understanding that it was not in a locked compartment.

Q. It was in the open shed?

A. That is correct.

MR. MURPHY: Just a moment.

REAR ADMIRAL BARROW: Off the record momentarily.

(Pause.)

REAR ADMIRAL BARROW: Back on the record.

Q. Commander, do you have any knowledge as to the present location of that pellet to which your reference was
made?

A. Yes; that pellet is in St. Ignace, but that pellet has been washed off with some type of degreaser at the warehouse, when Mr. Madigan found the pellet and they took it, I don't know exactly where, but he is here right now and you can get that firsthand information from him.

But whenever the coating was on the pellet, it was removed to see what it was, to see what was actually underneath the coating of it. That is my understanding of it.

Q. But the pellet is still under custody some place?
A. Yes; he has the pellet.
Q. Who is he?
A. Mr. Madigan. The pellet is in St. Ignace. He has it.
Q. The raft on which that pellet was found, referring to that raft, would you tell us as much as you know about the history of it prior to the time that you examined it?
A. It is my understanding that the raft was picked up by the Canadian Provincial Police and subsequently transported to the Coast Guard Base at Sault Ste. Marie by them, delivered to the Coast Guard Base and it remained in the storage area there during the entire time.

MR. MURPHY: Just a moment.
REAR ADMIRAL BARROW: Off the record momentarily.

(Pause.)

REAR ADMIRAL BARROW: Back on the record.

MR. MURPHY: No further questions.

REAR ADMIRAL BARROW: Any questions by the Board?

CDR. LOOSMORE: Yes, sir.

EXAMINATION

By Cdr. Loosmore:

Q. Back to the Rottmer releasing gear again; when the operating lever is moved from its normal position, which is to the release position, what does that do to the hook lock?

A. It opens it.

Q. Does it rotate the hook lock?

A. Yes. Actually the hook lock is a piece of steel. I believe it is 100, a 180 degree arc or a half circle, half the arc of a circle, and it turns it so it encompasses the base of the hook itself. If this was the hook, this would be the hook lock in a normally stowed position (indicating).

Q. Perhaps you can show me from the photograph. We have Exhibit 98-K which has been marked by this witness.

A. All right. This is the forward end of No. 2
boat, and this is the hook lock itself.

Q. Indicating the part marked "Hook Lock" on the photograph?

A. That is correct. You can see this would be the locking portion.

Q. Indicating the top of the hook lock?

A. Right. Now, this piece, this extension piece does not completely encircle the piece of metal here.

In other words, one half of this circle is closed and the other half is open.

Q. What happens to the hook lock when the operating lever is moved from one position to the other?

A. The hook lock, if it is moved, if the operating lever is moved from the stowed position to release the boat, the hook lock actually rotates around the base of the hook so that it opens, so that it becomes open.

Q. You indicated a sweeping motion across the picture.

Can you indicate the axis about which the hook lock rotates; is there anything in that photograph which would show that?

A. I am not sure I understand your question.

Q. Well, let's go back to the lever.

The lever is not indicated in that picture, but can you indicate what the shaft does when the lever is moved?
A. Yes. The shaft rotates also. The lever is connected onto the shaft. When the lever turns, when the lever is rotated, the shaft turns.

Q. All right. And when the shaft turns through the universal joint, what does the section which you have indicated as the hook lock -- doesn't it turn also?

A. Yes.

Q. What happens if you put the lever back down?

A. Then the hook lock closes.

Q. Well, all right. Is there some reason that a circumstance could not occur where the lever would be rotated open, to the open position, the hook lock would open, the lever would be rotated back to the closed position, and the hook lock would close?

A. No. That is normally what happens.

Do you mean to say this situation duplicated?

Q. No, no; just answer that question. Is there some reason why, when you open, rotate it to the open position and rotate it back to the closed position, that the hook lock itself does not rotate back to the closed position?

A. No.

Q. Now, if that is true, then why would it not be possible to have a condition such as shown in that photograph by doing precisely that?

A. Because by the time you turned your lever to the open
position -- the hook would remain in place, unless there was a force pulling up on the hook. So what you would simply do is open your lock and close it, and the hook would do nothing.

Q. But wouldn't it be possible to open the lever, close the hook and close the lever and have the hook fall back down as the position shown there?

A. This would not be possible because the hook returns to its resting position as soon as the weight is off it. That is the way it is mounted.

Q. Is there any mechanism within that operating device, that releasing device, which forces that hook back down?

A. Not to my knowledge. In other words, from this photograph here, and this is 98-K, if you simply opened your hook lock, the hook would fall right back into place.

Q. Okay. Thank you.

Do you know who has the negatives of the photographs of the rafts? Are they still --

A. Materna still should have them. Actually there is some problem between the mail system there.

We did order three sets and we only received what we have here, so we are still waiting.

Q. Is there any of the oil coating which you testified on the raft shown in the photographs of the rafts?

A. Yes.
Q. Could you point it out, please?

A. Yes. In 100-G we can see some oil here (indicating). There is oil on the painter all the way through.

Q. A painter being held by the two people?

A. Right. The two people in the photograph. Capt. Nurmeste here on the right and myself on the left.

This is a CO₂ bottle that was with this raft.

Q. Indicating the white object on the right?

A. Right. There is oil on there. It is difficult to pick out any individual spots on the dark background here, so I can't recognize any there.

Q. Okay. Thank you.

A. If I might, this is 100-H. Now, here is considerable oil.

Q. Pointing to the left side of the raft being held up by the person being labeled as No. 27?

A. Yes. This photograph here actually depicts the inner floors of the raft, which were found separate and apart from the raft itself. These are the inner floors blown up by hand pumps once the raft is launched and people get in it.

Q. But your testimony is that the darker material on the inner floor is actually an oil coating?

A. That is an oil coating, yes.

Q. You testified that the material condition of the
boats, in answer to one of Mr. Murphy's questions,
the material condition of the boats was good.

What did you mean by material condition?
A. That means there was no deterioration of the boat.
Q. But they were pretty severely damaged?
A. Yes, but you would still have been able to see
deterioration.
Q. So you did not include that in your statement about
damage, about the material condition?
A. Other than the damage, that is correct.
Q. You used a phrase "dynamic stress" in your original
testimony, and you discussed it a little bit with Mr.
Murphy.

You talked about a hoisting ring being free to move
within the slot of the hook.

What is the significance of that motion?
A. Well, the significance of the motion is that you
would have a dynamic stress on the throat of the hook,
which in turn --
Q. Hold it a minute.

You would have a dynamic stress on the throat of the
hook resulting from what?
A. Resulting from your hoisting ring being forced up and
down against the throat of the hook.
Q. Now, would that occur when the boat was in its gripes?
A. No.

Q. When would that occur?

A. Normally you don't run into a condition like that on 
launching a boat.

Q. But you were talking about the boat being free of its 
gripes and saddles?

A. Yes.

Q. And this resulted in some dynamic stress?

A. That is correct. Obviously it had to come from 
gripes and saddles for the boat to be found adrift.
So at some point from whatever did happen, at some point 
that boat was released.

Q. Released from what?

A. From its cradle and its gripes.

Q. Okay. And is it your conclusion from observing these 
photographs and based upon your knowledge of boats and 
so forth that it was released from its gripes and saddles 
before the hooks were released from the fall?

A. Yes, sir. Definitely, in my opinion.

CDR. LOOSMORE: That is all I have.

EXAMINATION

By Capt. Wilson:

Q. Commander, is there much taconite in the area of 
Sault Ste. Marie?

A. No.
Q. Is there basically any?

A. I have never seen any there, other than on ships.

Q. On the boats, is there anything that prevents the operating lever from being inadvertently moved when the boats are cradled or swung out, or in any other position, otherwise, anything that -- how do you prevent or keep that lever from being moved?

A. When the release lever is in its normally stowed position, you have a locking pin that goes across the lever bar itself, which would make --

Q. What photo would depict that?

A. That shows in 98-J, and it shows the release lever in the normal stowed position and the locking pin as is labeled here.

The problem with this situation here right now is although the locking pin runs through one of the eyes on the handle cradle, so to speak, it does not run all the way across the hands.

Q. In a normally stowed proper position, this pin would run across the bar and back into an eye on the opposite side.

MR. MURPHY: Pardon me. What exhibit is that, sir?

THE WITNESS: This is 98-J.

Q. Now, the pin secures the operating lever?
A. Yes.

Q. Is there anything that prevents the pin from falling out normally?

A. Well, you have a section on the end of the pin which is a little swivel type affair, which would serve the purpose as a locking key.

Once it goes through the opposite eye, then the key itself would be locked in there by pushing that portion down, and it is free to swivel, and to take it out, you simply straighten out and pull the pin out.

(N.B.: See next page.)
Q. If an individual were to attempt to launch that boat with that releasing gear from a vessel, at which point in the operation would the individual, assuming he knows what he is doing, perform each of these manual operations, such as removing the gripes, moving the operating lever and any other evolutions that are required?

A. Well, as I understand it, do you know -- can you tell me what type of davits they had? Were they quadranal davits?

Q. They were quadranal davits.

Quadranal davits? The normal operation or procedure would be to take the strong backs and the boat covers off and to release your gripes. In the meantime, you lead your painter forward, but after which the davit arms themselves would be swung out over the side with a crank and once they were extended over the side of the ship, the falls would be lowered. Sometime in this period, depending on the individual's preferences, I suppose, that pin would be pulled out, and that pin should not be pulled out until the boat is ready to go down.

In other words, until the falls are ready to be lowered and probably in that period when the falls are lowered, the locking pin would come out and just before the boat hit the surface of the water and this would again depend on sea conditions, the releasing lever would be thrown to the open position and the boat would instantaneously release.
Q. Now, in that evolution, when you said the individual would remove the locking pin, would this normally leave the locking pin in the position shown in the photograph, which is in the exhibit?

A. No, you take that right now. This shows it as being one eye and not crossed into the other.

Q. Referring to Exhibit 98-J?

A. Right, because it is secured to the immediate area of the lever cradle, so to speak, and as I say, again, by a little chain-like affair, that would make it stay there. I would think that this would be enough to release the lever, but the normal operation or procedure would be to pull that thing all the way out and let her go.

Q. Then, after the pin is pulled and the operating lever is, in fact, operating, where does the operating lever end out? What position is it left in after you release the boat from the falls?

A. Well, the boat, it would stay in the open position until it was, again, put back in its normal position of stowage.

Q. Now, the open position would be in what position in reference compared to the normally closed position? Through what arc does that handle rotate?

A. Probably about 140 degrees, I would imagine, 140 or 150 degrees, something like that.

Q. It is more than 90 degrees?
A. Oh, yes.

Q. You mentioned that in a normal evolution, if the rod were returned to its position, the hooks would have fallen back into the lock, is that correct?

A. Yes.

Q. If the boat were not upright or if it were at any angle, would there be any mechanism to force that hook back?

A. No, she just swings there, as far as I know, on her own weight.

I thought about this, too, as far as being inverted, what would happen, and I am not sure I understand. I was thinking about that yesterday evening, but whether she would return to her resting place in an inverted position or not, I would just be speculating right now. I would like to try it and see.

Q. To your knowledge, there isn't anything that would cause it to happen?

A. No.

Q. Otherwise, the return of the hooks is purely an operation of gravity?

A. That is correct.

Q. And the angle that it would function would depend on the pivot point of the hook.

A. Yes.

Q. Is that true?
A. Yes.

Q. Would those boats operate when the vessel had a list?

A. Yes.

Q. Would that mechanism, the Rottmer release gear, operate against a list?

A. Oh, yes, a list wouldn't create any problems whatsoever for this type of gear.

CAPTAIN WILSON: That's all.

EXAMINATION

By Rear Admiral Barrow:

Q. Commander, would the structural damage that you saw on those boats cause the hooks to disengage from the locks without the rotation of the lever?

A. I would say that there is a considerable amount of distortion and I noted that there was a moderate amount of play between the base of the hook and the lock itself, but I would think insofar as the elongation of things, of the material of the lock itself, I would probably have to go to a laboratory or something to get that.

Q. You wouldn't care to venture an opinion on whether or not the hooks could have come unlatched without rotation of the lock by the distortion of the metal in the boat itself and the release gear?

A. Well, when I operated the lever on the No. 2 boat, after I locked the hook, again, I grabbed that hook and I pulled and pushed as hard as I could and I didn't even start to budge it.
Q. Yes, but are there not other dynamics, for instance, at the time that the damage to the two ends of the boat occurred themselves, that there could have been any play that would have caused them to unlatch?

A. I would say that is possible, Admiral, but you still would have to have your strain now on your hooks themselves for the hooks to come free. You would have to have that stress on the throat.

Q. You have described the boat drill there from the time that you take off the strongbacks and the covers and the actual release of the boat. We have had a lot of testimony on how long it takes to do this.

You must have witnessed a lifeboat drill a number of times. Could you give me an idea in your judgment as to how long it would take to go through the procedure you have just described?

A. This would be my opinion for a Great Lakes merchant crew?

Q. Yes.

A. I would say from the time the bells were rung for the average drill that I have witnessed, I would say approximately ten minutes until the boat is in the water.

Q. This would be in port?

A. Yes, sir.

Q. How was the boat lowered? Is there a winch of some kind?

A. As I understand it, the ones with the wire, if they were
fitted with wire cables, yes, we still have some here that
are Manila falls, which would be hand loaded, but I believe
with this rig here, there was a winch and she just released
off of the brake.

Q. Off of the brake? You don't need power or anything?
A. Not to lower the boat, no, sir.

REAR ADMIRAL BARROW: That's all I have.

Captain Zabinski?

EXAMINATION

By Captain Zabinski:

Q. Commander Mania, it would be your testimony that stress
and in combination with distortion of the lifeboat, could
have released those falls without the lever being thrown.
A. Yes, sir, I would say so.

Q. There were no air tanks shown in No. 1 boat, is that
correct?
A. That is correct.

Q. Do you know the circumstances under which it was
recovered?
A. No, I don't.

Q. Commander Mania; without air tanks in a boat, what
would provide the buoyancy to recover that section of the boat?
A. The only thing that I could possibly see is that if
they did become overturned and trapped some air -- I am
looking at 98-B right now and the only other way that I can
see, if they overturned and trapped some air, would be up
here in the bow of the boat. Otherwise, there is nothing.
Once the air tanks were gone and she was in the open sea,
she should have sunk.

Q. It must have been recovered upside down, you feel?
A. I would think so, unless those air tanks were removed
by whoever found her.
Q. That is the only other possibility?
A. Yes.

Q. To your knowledge, were the air tanks removed from No. 1,
the half boat section?
A. No, sir.

Q. Could you describe the Soo base where this equipment
was located? Is it a Coast Guard base?
A. Yes.

Q. Is it fenced or is it open? Does the public have access
to it or what?
A. It is fenced, but the main gate is not tended.
Q. The general public walk in and out?
A. Well, I think there were quite a few people in there
after the Fitz went down, yes.
Q. Quite a few people?
A. Yes, reporters mainly, and I think I was there two days
on two occasions.
Q. What dates were they?
A. The 13th and it might have been the 15th, but in any
event, it was the 13th and shortly thereafter, and there
were reporters in the area and things.
Q. Taking photographs and so forth?
A. I didn't see anyone taking any photographs of the boats.
They were asking a lot of questions.
Q. Counselor has volunteered that he met you there, I guess,
on the 13th, is that correct?
A. Yes.
Q. Was anybody else representing Oglebay-Norton Company
present at that time, to your knowledge?
A. We actually met at the U. S. Steel warehouse where we
discussed several of the preliminaries and providing of
certain documents and things for the record, and then later
in the afternoon there were five representatives of the
company at the time, at the meeting, along with Mr. Madigan
and myself and it was later in the afternoon that we met
on the base that day.
Q. Who was there at that time?
A. Mr. Murphy was with me and I believe three of the other
gentlemen accompanied us down there.
Q. Do you know their names, to your recollection?
A. Mr. Thompson, vice president. Mr. Thompson was there,
Mr. Murphy was there and the general counsel for the company
was there and Captain Jacobsen was there. That's four, and I
can't recall the fifth. I had that written down on my notes, but I turned that over to the Board.

Q. One other to your recollection?

A. Yes.

Q. There were five?

A. Yes.

CAPTAIN ZABINSKI: That's all I have.

REAR ADMIRAL BARRON: Counselor?

MR. MURPHY: I am afraid I am going to have to ask another question or two because I am still a little confused on this and I think the record should be clear.

EXAMINATION

By Mr. Murphy:

Q. As you have just answered in response to Captain Zabinski's question, that base has an open gate, is that correct?

A. Yes, sir.

Q. And there are people in and out of there all the time without any concern as to their entering and leaving, isn't that correct?

A. I don't know what you mean by concern.

Q. I will ask you to take my observation and ask if it is consistent with yours, if I may, and Captain Millradt was here and Captain Millradt has testified, and he has so indicated
that from the time that I arrived at the base on the morning following the casualty, the 11th, there were numerous television reporters. There were numerous people making all sorts of inquiries, coming and going without any restriction or any control over who entered and who left.

Was that your observation during the period that you were there or generally your observation?

A. I would say that that's a fair statement.

Q. Yes. And the shed in which these various items was stored was open on both ends; was it not?

A. Yes.

Q. And some of the items were in the shed and some of the items were outside of the shed?

A. Yes.

Q. And when you arrived, we determined that those that still were outside of a locked room in the shed should be put in a locked room. Do you recall that? Isn't that true?

A. Well, that night there were still things coming in. Yes, I would say that whatever was there should have been put in, because nothing had been tagged up to that point or labeled or photographed.

Of course, it was still coming in.

Q. The only point I am making, Commander, is that there would have been numerous opportunities for these various items that were on the base to have been observed and tampered with
by other people?

A. Yes.

Q. There is no question about that?

A. That is right.

Q. Now, with respect to the lifeboat, the half lifeboat, this is the one on which the question of the releasing gear has arisen; is that right? Am I right on that?

A. On the releasing gear? Do you mean the change from what I saw?

Q. Yes.

A. That was on the No. 2 boat, the full boat or the whole boat.

Q. Do you know what date that boat was brought to the base?

A. I did know, but I don't have the inventory sheet.

I had a copy of the inventory sheet, which stated where it was received from, and as far as I recall, that boat was there on the 13th.

Q. Now, that is the full boat.

A. I think so. But rather than guess, I would rather see the receipt for it. One of them was there. I know that.

Which one was, I can't remember.

REAR ADMIRAL BARROW: Give your best recollection of what you know.

A. I can't recall whether it was one or two that was there but in any event, I did not look at the releasing mechanisms
or anything on whichever one it was. I paid no attention to it on the 10th.

Q. Until when?
A. Until the 25th.

Q. So between the 10th, the day of this casualty, and the time the boat was picked up, until the 25th, you have no knowledge as to who might have had an opportunity to tamper with, operate, or to have made any manipulation of the gears shown in these photographs; is that correct?
A. Yes.

Q. So any conclusions that can be reached at this time from those photographs are subject to the condition having existed sometime prior to the time that you looked at it, and you don't know when this condition arose?
A. That is true. But let me just point out on Exhibit 98-L in order to duplicate the situation of the lock being in place and the hook being out, it could not be accidental.

If somebody did this, they would have to know the gear, and they would have to know what they were doing. They would probably have to have two people, because you would have to open the lock, take the hook out and then close the lever again to close the lock and then let the hook lay down in place.

Q. And there is no reason why that could not have been done in that interval?
A. In other words, could somebody have gotten in there to
the boat?
Q. Yes.
A. Yes.
Q. And couldn't somebody have done that?
A. Yes.
Q. So there is no way you can determine from these
photographs any significant determination as to the manner in
which these lifeboats were separated from the vessel?
A. For No. 2. This is my opinion. You would have to assume
that no one tampered with this and did this deliberately.
Q. Which could have been done?
A. I suppose it is possible.
Q. And also with respect to the half boat, the locking
mechanism on that, between the date that you observed it and
the date the photographs were taken, there would have been
numerous opportunities for people to have tampered with that
mechanism?
A. Well, that one was unchanged, but the same circumstances
would pertain to No. 1 as far as accessibility, so far as we
just discussed for No. 2.
Q. Then am I correct that because both of these boats were
subject to tampering for quite a period prior to the time that
you examined them and also prior to the time the photographs
were taken, that there really aren't any conclusions that can
be drawn with respect to the manner in which these lifeboats
were separated from the Fitzgerald?

A. Well, my conclusions are based on the assumption that
they were not tampered with, that is correct, but if you had
to leave that condition on there, then what you are saying
is obviously true.

MR. MURPHY: I have no further
questions.

REAR ADMIRAL BARROW: Anything by the Board?

COMMANDER LOOSMORE: No, sir.

Captain Zabinski?

EXAMINATION

By Captain Zabinski:

Q. Commander Mania, your conclusions are here, and you
ran this inspection at the request of the Board, the physical
condition of the boats, your testimony here is indicating the
condition as you saw it on that date at that time; is that
correct?

A. That is correct.

CAPTAIN ZABINSKI: That is all I have.

EXAMINATION

By Commander Loosmore:

Q. Did you say, Commander Mania, something about looking at
the receipt for the debris?

A. Well, I shouldn't use the word "receipts," because it was
more an inventory list. As the items were being delivered to
the base, they were simply written down on a piece of paper as
to what they were and who they came from.

Q. Did you see that list?
A. Yes.

Q. Do you have that list now?
A. The original should be up at the base.

They were at the base when I was there.

There were copies that I had made of the items that
they had received up until the time I got there, and I took
a copy of that.

COMMANDER LOOSMORE: All right. Thank you.

REAR ADmirAL BARROW: The Board should get
a copy of that list for the record.

MR. MURPHY: May I approach the bench
for a moment?

REAR ADmirAL BARROW: Off the record.

(Discussion had off the record.)

REAR ADmirAL BARROW: Back on the record.

Counselor?

EXAMINATION

By Mr. Murphy:

Q. Commander, I hope you will excuse my continued
confusion, but I am going to ask you this question so I under-
stand it clearly.
Is there any suggestion from your testimony that either
of these boats might have been released prior to the sinking
of the vessel?

Q. Prior to the sinking?
A. Yes.

Q. And your answer is no?
A. No.

MR. MURPHY: All right. Thank you.
I have no further questions.

CAPTAIN ZABINSKI: When you say released,
Counselor, do you mean by someone aboard the Fitzgerald
physically moving the release lever? Is that what you
mean?

MR. MURPHY: Yes.

THE WITNESS: You are talking about
abandoning ship aboard the Fitzgerald?

MR. MURPHY: Yes.

COMMANDER LOOSMORE: Sir, I think that
contradicts some prior testimony.

EXAMINATION

By Commander Loosmore:

Q. Didn't you say in discussion or in answer to some of
my questions that it was altogether possible that the
operating lever could have been raised which released the hooks,
and then lowered before the hooks fell back, which would lead
to the condition shown in that photograph, 89 whatever it is?
A. There is no --
Q. Not as evidence, but I said possibly. I am looking at
Photograph 98(k).
As we discussed before, the operating lever rotates
this shaft around its axis?
A. Yes.
Q. And the rotation of this shaft rotates the hook lock,
and the rotation of that releases it if there is a vertical
strain causing it to rise?
A. Yes.
Q. With the hook up, returning the operating lever to its
position, that causes the shaft to rotate around its axis.
You push the operating lever back down, and wouldn't that
make this rotate?
A. Yes. If you held the hook up.
Q. All right. Let's hold the hook up.
A. And then close your operating lever back to its normal
position of stowage, and you would have this result; that is
correct.
Q. Yes, sir. Is there anything there that rejects the
possibility that the boat was released before it was damaged?
A. Well, the hooks, once it is released, it should fall
back down into its normal position of stowage.
Q. It seems to me we have concluded that it is at least possible, if not common operating practice, at least possible that you can open the lever, which releases the hook, lay the lever back down flat and have the hook back into this position (indicating)?

A. You would have to close that lever back down again before that hook came back down and went into the normal operating place of it, if you could do that, yes, it is possible.

Q. Is there anything else in any of your examination or in the condition which clearly rejects the possibility that the boat was launched before it was damaged?

A. Well, that would be a conclusion on my part, but I would say that this damage would not occur by the sea.

Q. That is not exactly the question I asked.

A. I know. The physical appearance of the overall condition of the boat itself and accompanied with the damage --

Q. But would you answer the question? Is there anything --

MR. MURPHY: Let him answer it.

Let the gentleman finish.

COMMANDER LOOMIS: May I ask the witness the question?

REAR ADMIRAL BARROW: Well, let's have the question back.

(Record read.)

REAR ADMIRAL BARROW: I think we should let him
finish the answer he was trying to make.

THE WITNESS: As an example of the over-all and general damaged condition, I will refer to Exhibit 98(a), which is the bow area of the No. 1 boat, where she is holed, the saddle area. This is the position where the boat normally sits in the saddle.

Now, this would be like the same boat and the same side that the Anderson suffered, the same type of damage in the saddle area to the starboard side.

This would have occurred, I would assume, before the boat was launched.

That's the point I am trying to make or making there.

Here is No. 2 photograph in 98(e). The damage here, the structural damage here is also the saddle area damage, so it would be my conclusion that this damage was done while the boats were still aboard the ship.

Q. That's Boat No. 2?

A. Yes. Of course, that's a conclusion. Both boats show holes in the area of their normal cradled positions in the saddles.

That is why I reached that conclusion.

COMMANDER LOOSMORE: I have nothing further.

MR. MURPHY: Just one more question.
EXAMINATION

By Mr. Murphy:

Q. With respect to those levers, the lever also was subject to the same kind of period of tampering as the other equipment that you have discussed previously, was it not?

A. Oh, yes, and conditions were the same, that is correct.

Q. So that anyone could have moved that lever during the period of time that the boat was recovered and the time that you examined it?

A. Yes, sir.

MR. MURPHY: Thank you. I have no further questions.

EXAMINATION

By Captain Zabinski:

Q. Is that on one boat, two boats, or both boats, Commander Mania?

A. I don't know for a fact whether the lever on No. 1 can even be turned.

It is very badly twisted.

I was afraid to touch it, knowing the difference, so I left it as is.

Q. In response to counselor's questions, your answer is No. 2 could have been?

A. Yes.

Q. And in response to No. 1, what would be or what would
have been the answer?

A. I would say if the lever can, in fact, be moved, then
the same conditions would apply to No. 1 as applied to No. 2,
but I don't know that that lever can be moved the way she is
so badly twisted. You would have to try it.

REAR ADMIRAL BARROW: Is there anything further?

(No response.)

REAR ADMIRAL BARROW: Exhibits 97 for identifi-
cation, 98(a) through (l), and 99(a) through (g),
100(a) through (h) and 101 are admitted into evidence
without objection.

COMMANDER LOOSMORE: Excuse me. We changed
97 to 97(a), (b) and (c).

REAR ADMIRAL BARROW: 97(a), (b) and (c).
You are right. All are admitted into evidence without
objection.

MR. MURPHY: No objection.

REAR ADMIRAL BARROW: Commander Mania, we
have asked you a number of questions here concerning
your knowledge principally of the job you did upon the
request of this Board, which was to investigate into
the lifeboats that were recovered and also some
additional testimony on the inflatables.

I will ask you now if there is anything regarding
the condition of those particular pieces of equipment
which has not been elicited by questions from the Board and by counsel that you can tell us now?

THE WITNESS: No, sir. I think we have covered it very thoroughly.

REAR ADMIRAL BARROW: Very well. Thank you very much. You are excused. You are cautioned not to discuss your testimony with other than counsel until the conclusion of the Marine Board of Investigation.

COMMANDER LOOSMORE: Commander Mania has been a big help, and I thought it ought to be pointed out that he has done a very thorough job in the Board's request with respect to the lifeboats.

MR. MURPHY: Might I also make the same statement on behalf of Oglebay-Norton that Commander Mania, from the time we met him at the Soo until the time that we parted, showed every effort of good cooperation and assistance, and we certainly appreciate his endeavor in attempting to determine the cause of this casualty.

REAR ADMIRAL BARROW: Thank you very much. You are excused.

(Witness excused.)

REAR ADMIRAL BARROW: Let's take a five-minute recess.

(Recess had.)
COMMANDER LOOSMORE: Let the record show we reconvened at 12:05.

Counsel for Oglebay-Norton present.

Continue, Commander Loosmore.

COMMANDER LOOSMORE: The Board calls Philip Branch.

Would you raise your right hand, please?

PHILIP M. BRANCH

was called as a witness and, being first duly sworn, testified as follows:

EXAMINATION

By Commander Loosmore:

Q Would you please be seated.

Would you please state your name, rate, service number and duty station?

A. Philip Michael Branch, Petty Officer Second Class, 410421, Operations.

Q And where are you stationed?


REAR ADMIRAL BARROW: The purpose of this investigation is to determine as closely as possible the cause of the sinking of the SS Edmund Fitzgerald on 10 November 1975.

We have called as many people as we know who might have had some knowledge of the vessel itself, or people
who may have participated in any communication with the vessel.

I will ask you to answer the questions that are put to you by the Board and by counsel as clearly and as explicitly as you can. We are trying to take a verbatim record. I will ask you to speak up. We don't have a microphone over there, so speak slowly and speak loudly so that we can hear you.

Commander Loosmore?

COMMANDER LOOSMORE: Yes, sir.

By Commander Loosmore:

Q. Mr. Branch, what are your duties at Group Soo?

A. Well, sir, as far as Group Soo is concerned, it is a SAR facility. We also handle weather. Actually, that just about sums it up.

Q. Do you stand watches?

A. Yes, sir, I do.

Q. What sort of watches?

A. They are eight-hour watches. We listen up on the distress frequencies. We guard these frequencies.

Q. Do you maintain a log of your watches?

A. Yes, sir, we do.

Q. I have Exhibit 80-F, which has been offered into evidence in this hearing.

Do you recognize that or any of the attached pages?
A. Yes, sir, I do.

Q. What is that?

A. This is my radio log from the night of the 10th of November, as actually --

REAR ADMIRAL BARROW: We are having a little trouble hearing you. Would you please speak up?

By Commander Loosmore:

Q. Now, what is this?

A. This is the radio log from the night of the 10th of November. I was on watch at that time.

REAR ADMIRAL BARROW: Would you put the microphone up a little closer to your mouth?

By Commander Loosmore:

Q. Now, what is that?

A. This is the radio log from 10 November 1975. I was on watch at that time.

Q. Did you personally keep that log?

A. Yes, sir, I did. Parts of it.

Q. Parts of it?

A. Yes, sir. As far as this evening watch goes, yes, sir. This was from 0000 Greenwich mean time and 0444.

Q. There is an entry on this log which begins: NOG TI Arthur M. Anderson, and so forth. Did you make that entry?

A. Yes, sir, I did.
What does that entry represent?

NOG is the call sign for Group Soo.

It reads: Group Soo, this is Arthur M. Anderson, over.

OVR is over?

Yes, sir.

And the slash bar, what does that indicate?

That indicates that his transmission was over and I began a new one directly after that.

After? What was that?

"This is Group Soo, over."

And the indication, TI NOG OVR, means --

"This is Group Soo, over."

All right. We have that entire entry in evidence in that exhibit and we have also had it read into evidence.

Now, how was the radio communication that that entry is a record of, how was that communication conducted?

Well, we were --

Were you on radio telephone?

Well, yes, I was on radio telephone FM, the microphone on one of our high-level sets.

Does that entry represent a radio telephone communication that you were a party to?

Yes, sir.

Does that entry represent a radio communication that you were a party to?
A. Yes, sir, it does.

Q. How was that communication conducted?

A. By radio telephone.

Q. Radio telephone?

A. Were you personally speaking on the radio telephone?

Q. Yes, sir, I was.

Q. How did you make that entry?

A. You mean --

Q. Did you personally make that entry?

A. Yes, sir, I did.

Q. At the typewriter?

A. Yes, sir, I did.

Q. Did you make that entry as the conversation was going along or once it was completed?

A. Once the conversation was completed, I typed it in.

Q. Did you make any entry while the conversation was in process?

A. No, I didn't.

Q. At the end of this entry, at the last line -- well, I am not sure of that. I will ask you that.

There is an entry here, an entry line beginning with:

RGR. What does that mean?

A. Roger.

Q. And this slash bar?

A. That is the end of that transmission and the beginning
And then TI NOG?

"This is Group Soo."

And who would that have been speaking then?

I was speaking.

And it says, "Will get back to U - out"

The dash actually has no significance.

Now, on that same line there is a notation with the numerals 22FM.

What does that mean?

That was the frequency that I was speaking on at the time, 22, channel.

Channel 22?

Yes.

Do you know what frequency Channel 22 is, offhand?

No, sir, I don't know right offhand.

Many of the other entries in that log are Channel 16. Are you sure that that one was 22 rather than 16?

Yes, sir, if that is what I typed up, I am sure that that's what it was.

What is Channel 22 used for?

That is a Merchant channel, a Coast Guard Merchant channel is what it is.

What is Channel 16 used for?

That is a distress frequency for FM.
Q. You have Channel 6 capabilities?

A. Yes, I do on one of my radios. I do not on the --

Q. You have it on the one that you were talking on when that particular conversation was conducted?

A. I believe so, but I can't remember which one of the radios I was using at that time. I have five different radios.

Q. You have five different radios?

A. Yes.

Q. All of which are operating at any one time?

A. Yes.

Q. What does this set of numbers immediately adjacent to the notation 22FM indicate?

A. That is the time that that conversation took place, sir.

Q. Is that the time the conversation began or ended or what?

A. That is the time that it ended.

Q. And what is that time?

A. 0132 Zulu.

Q. And what is that local time?

A. That would be five hours earlier, which would make it 2032 local, Romeo.

Q. That is quite a lengthy conversation you had there with the Anderson, isn't it?

A. Yes, it is.

Q. How long would you estimate all of that would take or took? How long would you estimate that that took?
Well, he passes information to me. Actually, I didn't say a whole lot there, probably no more than two minutes, I am sure. I wouldn't think so. That is the maximum, I would believe.

Q. Then what time would the conversation have begun?
A. Possibly as early as 0130 Zulu.
Q. Okay. Could it have been earlier than that?
A. Possibly.
Q. Was there quite a lot going on that evening?
A. Yes, there was a whole lot.
Q. What watch did you stand on the 10th of November?
A. It was an eight-hour watch that ran from 1600 to 2400.
Q. Do you recall a conversation you had with the Coast Guard Station at Grand Marais concerning the Fitzgerald?
A. Yes, I do.
Q. This is Exhibit 80-C, which is in evidence in this case. Do you recognize that?
A. Yes, I do.
Q. And what is that?
A. This is my statement as to what happened as far as Whitefish Point was concerned that evening.
Q. Is there anything that you feel is incorrect in that statement?
A. No, sir.
Q. Is there anything which you think now should be added
to that statement concerning that call about Whitefish beacon?

A. No, sir.

Q. Do you have any capability of monitoring Whitefish beacon in your monitor room?

A. Yes.

Q. After that call, did you attempt to monitor Whitefish radio beacon?

A. No, sir, I did not.

Q. Is there any automatic monitoring of Whitefish?

A. No, sir, there is not.

Q. What was the status of your radio equipment on the evening of the 10th during the storm?

A. There were various outages that evening.

I was only capable of using three of my five radios.

In addition to that, I lost two of my distress frequency guard receivers.

Q. Were you still able to talk on every channel that you were supposed to?

A. Yes, sir.

Q. Were you still able to listen on every channel that you were supposed to?

A. Yes.

Q. Did you have any standby equipment available in addition to what you were receiving?

A. No, sir.
Q. So everything you had was being used?
A. Yes, sir, it was.
Q. There has been some testimony concerning a piece of equipment called a high-level site at Grand Marais.
A. Are you familiar with that?
Q. Yes.
A. Have you ever seen that?
Q. No, I have not.
Q. Do you use that as part of your equipment from Group Soo?
A. Yes.
Q. What does high level mean?
A. To the best of my knowledge it is an antenna is what it consists of. It is just an antenna.
Q. And what is "high" about it?
A. Well, it stands high generally, I don't know how high, but it stands high so as to get a better range.
Q. And is this an all-frequency antenna, or is it restricted to some frequency?
A. All frequency. We use it for all the frequencies that we need.
Q. All the FM, VHF and FM?
A. Yes.
Q. Can you use AM on it?
A. No.
Q. And was that high level site operating that evening of
the 10th?
A. No, it was not.
Q. Do you also handle the weather broadcasts through the radio station at Group Soo?
A. We receive weather.
Q. Do you receive weather?
A. And we also send it.
Q. Does your log indicate whether you sent any weather during your watch on the 10th?
A. Yes.
Q. And did you send weather?
A. Yes, I did.
Q. Did you receive weather?
A. As far as via the radio?
Q. Well, through your watch at all?
A. Yes.
Q. Was this weather to be transmitted to the Weather Bureau?
A. Yes.
Q. Did you receive weather from every station that you were supposed to during that watch?
A. We had difficulty at one time making contact with a couple of our light stations, because one of my high-level sites had gone inoperative, and I don't recall whether I got their weather that evening or not.
Q. Do you also receive weather from automatic reporting stations?

A. Yes, I do.

Q. Were they all reporting that evening or do you remember?

A. I don't remember, sir.

Q. If there had been any that were not reporting, is the process that the weather is recorded at the station, and then it is transmitted, or is it transmitted directly?

A. All I know is we receive it, and if it does not get there, then I don't know if it is recorded or not.

Q. Have you ever been to one of these automatic transmitting stations?

A. No.

Q. What means do you receive it on?

A. Teletype.

Q. Is that a land line?

A. Yes.

Q. It is not a radio teletype?

A. No.

Q. To come back to the radio log in front of you, once you had received this call from the Anderson concerning, I believe at that time it would be fair to characterize it as difficulty with the Fitzgerald or a question with the Fitzgerald, what did you do following your 0132?

A. I myself had attempted to contact the Fitzgerald. I also
WLC Rogers City, which is a commercial station to ask them
to try and contact the Fitzgerald for me.

Q. And did they say they would?
A. Yes. I believe they gave it a try and got back to me
and said he had a problem with his antennas and would have to
go out and check them out.

Q. What else did you do about the Fitzgerald?
A. I contacted the officer of the deck and let him know
that this had been reported and at that time I went back to
the radio, leaving him with an all-exit that we had this
difficulty.

Q. You mentioned a difference between Group Soo and
Soo Control radio?

Q. What is Group Soo?
A. Group Soo is a SAR facility where as Soo Control,
they are almost like a vessel traffic system. They control
the St. Mary's River and the ships within.

Q. Does Soo Control communicate with vessels on 22FM?
A. Not primary, but they do have the capability of doing so.

Q. And what is their channel?
A. Channel 12.

Q. Is 12 a calling frequency?
A. No, it is not really. There is only one calling
frequency.

Q. And what is the procedure if an emergency ship wants to
talk to Soo Control?

A. As far as Soo Control, they do guard Channel 12.

When a ship comes into the river, then they can contact Soo Control on Channel 12.

Q. How do you tell when you are carrying out a conversation like the one with the Anderson, how can you tell what frequency you are on? What indicates that?

A. On the radios we have buttons, channels that you push. You push the button and you get on whatever channel you want to be on.

Q. Does it indicate in that log what frequency the Anderson called you on?

A. No, it doesn't.

Q. Do you recall whether he called you initially on 22 or he called you on some other channel?

A. I don't recall, but I really wouldn't think that he did, due to the fact that I don't guard 22 unless I know there is going to be somebody there.

Q. So what channel would he have called you on?

A. Chances are it would have been 16.

Q. Who would have suggested 22?

A. Either he or I, whoever set it. Probably me.

Q. During the course of your watch, prior to the time you heard from the Anderson, had you overheard any calling or any other conversations concerning the Fitzgerald, other than
the one with Grand Marais?

A: No.

Q: And what channels are you guarding?

A: Channel 16 and 51, which is an AM channel.

Q: Are you listening to 6?

A: No.

Q: What is the purpose of 6?

A: That's a ship-to-ship frequency, not having to do with the Coast Guard. It is a merchant-to-merchant type frequency.

Q: Is it pretty busy, a busy frequency?

A: I really don't listen to it that much.

Occasionally, we have listened on Channel 6 due to the fact that the river might be fogged in or something, and we would go to Channel 6, so we could listen on a conversation and find out what the visibility was on such and such a point.

Q: What AM capability does Group Soo have?

A: We have the distress frequency, 2670, merchant frequencies, aircraft frequency and anything we need we have on AM.

Q: Do you maintain a guard or watch on any AM frequency?

A: Yes, Channel 51.

Q: Channel 51?

A: Yes.

COMMANDER.LOOSMORE: That is all I have.
REAR ADMIRAL BARROW: Captain Wilson?

CAPTAIN WILSON: Yes.

EXAMINATION

By Captain Wilson:

Q. You mentioned that you are able to cover all the frequencies. Is that both for the listening watches that you maintain as well as transmitting capability on the evening in question?

A. Yes.

Q. Amongst the equipment that you note as being out, you mentioned the Grand Marais high-level sites.

Are they transmitting sites or receiving sites?

A. They are transmitting and receiving.

Q. Did you have other high-level sites as an alternate?

A. Yes.

CAPTAIN WILSON: That's all I have.

EXAMINATION

By Captain Zabinski:

Q. We have some testimony there may have been some power failures over at the Soo the evening the Fitzgerald was in difficulty.

Can you tell us about that?

A. As far as right at the Soo itself?

Q. Yes.

A. Yes, sir. There were power failures throughout the town
on and off all night long.

Q. Did that affect the Coast Guard Station or the Coast Guard communications?

A. It is really hard for me to remember on that specific night. We have had power failures down there, but I don't remember if we had them on that specific night.

Q. Do you recall any interruption because of power failure at the Soo on the night of the 10th of November?

A. No, sir, I don't.

Q. Do you have generating capability at the Soo if there is a power failure?

A. Yes.

Q. But to the best of your recollection there was no interruption in power which affected communications?

A. No, because it would have -- the generators would have came on so quickly that there might have been a flash, but that would have been about it.

Q. The transfer is so rapid you wouldn't have noticed it? Is that your testimony?

A. Yes.

Q. Would you ordinarily log a power failure if any, let's say, an outage in communications, if there was one of any magnitude?

A. Well, as far as Group Soo, if it was that fast, at our station, I would log nothing.
Say you were blacked out and there was no power.
Would that time period be logged?

Yes.

Will you review your log, your radio log and let us know if there were any radio interruptions on the night of the 10th?

(Witness reviewing.) No, sir.

Now, you indicated that you had five radios, normally you have five radios; is that correct?

Yes.

Can you list those radios for me, please?

We have a site at Munising, Grand Marais, and we have a site at Sault Ste. Marie. We have a site at Goetzville, and also there is a site at Beaver Island.

Do you know which of these were operative or inoperative?

Beaver Island was inoperative and so was Grand Marais.

Now, these are remote sites that you can control from sites that you can control from the Soo; is that correct?

Yes.

And the purpose of these remote sites is to give you a greater coverage; is that a fair statement?

Yes.

If the remote site at Grand Marais was out, would you lose a significant portion of the coverage of Lake Superior in your opinion?
A. Possibly and possibly not. I think it would depend mostly on how -- whether communications were good or bad.

It would depend, because I have a site at Munising and Sault Ste. Marie, which is on either side of that.

Q. Let's go to the site. Did you have any difficulty hearing the Anderson?

A. No, I didn't, once we established a frequency and the proper radio.

At first there was, but that was just due to the fact that we were not sure which radio to use.

Q. How many radios do you have at the station itself?

A. FM or total?

Q. AM and FM?

A. 3AM and 5.

Q. the 3AM, were all those operational, or what was their status on the night of the 10th?

A. We only used two. Two of them are the same, and it serves no purpose to have both on. We keep one on standby and one working. Also the other one was working.

Q. So you had two in use, two AM sets in use?

A. Yes.

Q. Were they operational to your knowledge?

A. Yes.

Q. Did you have any communications with any vessels or stations on these two AMs that were in use?
A. No, not communications. I attempted to contact the
B. Fitzgerald on Channel 51, AM.

Q. When was that that you tried to contact him? Was that
A. before or after your call?
B. Directly after the Anderson called me.

Q. Are those communications or those attempts to contact
the Fitzgerald entered in your log sheet, which is an exhibit
before the Board?
A. Yes, they are.

Q. What times do you have that listed, time or times?
A. Approximately 0133. I have that listed as twice, and
then agree at 0207. I have it again at 0215 and again at
0245.

Q. So referring to the log, you received a call from the
Anderson about the Fitzgerald.

Your indication was that that transmission was
completed on Channel 22 at 0132 Greenwich mean time; is that
correct?
A. Yes, sir.

Q. What time does the log indicate that you tried to reach
the Fitzgerald on AM?
A. 0133.

Q. One minute later?
A. No, sir, not on AM. AM was 0207.

Q. 0207, was that the first time you tried to reach him
1. on AM?
2. A. Yes, sir.
3. Q. What time was that?
4. A. 0133.
5. Q. Did you receive any response from the Fitzgerald on FM?
6. A. No, sir.
7. Q. How many times did you call the Fitzgerald on FM?
8. A. I have it listed here as four times.
9. Q. Four times? Could you read off the times that you did, please?
10. A. 0133, 0133 again, 0207, 0215, and it must have been five times because I have another one at 0245.
11. Q. And what channel would that have been, FM?
12. A. 16.
13. Q. You indicate you have five FM receivers.
14. A. Yes, sir. Actually, sir, we have 11 FM receivers.
15. We have 5 transceivers.
16. Q. Five transceivers?
17. A. Yes.
18. Q. Did you use transceivers or did you a combination of transceivers and receivers?
19. A. The receivers are always on, on the distress frequencies. I used the transceivers for communications.
20. Q. Do you know which site you were using on FM, trying to get the Fitzgerald?
A. Yes, I was using Munising, and the Sault Ste. Marie sites.

Q. In other words, you were using a remote site and the Sault Ste. Marie high-level site at the same time?

A. Yes, sir, at different times and at the same time.

Q. You received no response?

A. No, sir.

Q. On this call that you received from the Anderson at 0132 Greenwich mean time, which was 2032 local time, Eastern Standard Time --

A. Yes, sir.

Q. -- I would like for you to read that entry over to yourself and be prepared to respond.

A. (Witness reading.)

Q. Did you consider that an urgent message from the Anderson?

A. Not at the time. I took it and advised the officer of the deck what was going on. I didn't completely disregard it, but I didn't take it as urgent at that time.

Q. You didn't think it was a Mayday for the Fitzgerald?

A. No, sir, not at that time.

Q. What in the message -- is there any wording in the message that gave you the impression that it was not an urgent situation?

A. From what I received from the Anderson?
Q  Yes.
A  He didn't speak as if it was. I mean, he wasn't --
Q  Excited?
A  Yes, he wasn't overly excited or anything. He just
passed this along and it seems that I remember something
about him saying it could have been sea return, as far as
his radar went.
Q  Did the Anderson call you back at a later time?
A  Yes, he did.
Q  At what time was that?
A  I talked to him again at 0203.
Q  That's at 2003 Eastern Standard Time?
A  Yes.
Q  And what was the nature of that conversation?
A  The Anderson had called me and told me that he had the
mate with him there and he was the one that was on board,
that was on the bridge when this -- when they first noticed
him missing, or whatever they noticed up there.
Q  Was this a more urgent communication, would you say,
or how would you categorize it?
A  Yes, but by this time it was getting to the point where
there must have been a problem somewhere. There was no reason
because we had some upbound ships that was supposed to have
passed or should have passed the Fitzgerald and did not.
Q  Did you have to leave the radioroom to notify the OD?
Actually, yes, technically. Yes, but it is right in the next room where he was at. It is just out the door and back in is all it is.

Q Could any communications have come in from either the Fitzgerald or the Anderson during that period that you would not have heard?

A No, sir.

Q Are there communications on speakers or do you have to put a headset on?

A They are on speakers.

Q On speakers?

A Yes, sir.

Q Now, when you carry a conversation on 22 with the Anderson, can you still monitor 16?

A Yes, I can.

Q In other words, if an urgent communication came over on 16 while you were talking to someone on Channel 22, you could hear that?

A Yes, I can.

Q Is it loud enough that you would notice it?

A Yes, it is.

Q How about if you are talking on Channel 22 FM and a call comes in on the AM set, this is Channel 51, is that 2182 kilahertz?

A Yes, sir.
Q: Is that also -- does that also come through on a speaker?
A: Yes, sir, it does.
Q: Would you hear that if it came through?
A: Yes, I would.
Q: Did you hear any communications on that, on the AM, at any time from the Fitzgerald?
A: No, sir.
Q: By referring to your log, your best recollection now, Mr. Branch, when did you as a radioman, you were listening to the conversations and a minute later you tried to -- the Anderson called and a minute later you tried to raise the Fitzgerald and didn't or couldn't.

When was the first -- when were you first aware that there was a serious accident out there? Would you give us a time?

I am not talking in retrospect. I am talking at the time that the communications were coming to you.
A: It was considered serious the entire time, I am sure, but actually I didn't come to realize anything for sure even that night, up until the time that I was relieved from my watch. For sure, I didn't know anything.
Q: You felt it was still a search phase. Is that what you are saying?
A: Yes, sir.
Q. Rather than a distress phase?

A. Yes, sir. We had nothing definite at that time.

Q. Could you describe for me -- we have had testimony that the Soo monitors the radio beacon at Whitefish Point. We also have had testimony that the radio beach at Whitefish Point was inoperative at some period of time on the night of the 10th.

Q. Would you tell us what you know or what monitoring equipment there is at the Soo to give you an indication like that?

A. We did have monitoring equipment at the Soo for Whitefish Point. It is not automatic. I mean, you don't just hear it. You have to tune it in and you have to turn on the receivers and such, and as far as our gear stated, the radio beacon was inoperative and the sound signal and the light also.

Q. Is it your testimony that you actually monitored the radio signal coming from Whitefish Point?

A. No, no, sir. We don't -- we are able to monitor it, but it is not a constant thing. It is not automatic. We don't just hear it. It is not put through on a speaker.

Q. Is there any time that you are required, either by station instruction or by any other instructions to monitor the audio signal or the audio beacon at Whitefish?

A. No, sir, not to my knowledge.
Q. Is there any station, Coast Guard Station that
monitors the radio beacon, this audio signal, to Whitefish
Point?

A. Not that I know of, sir.

Q. How do you know it is on or off?

A. We have the gear in front of us, the Moore gear that
has the lights, has the lights on it that tells you whether
it is in a primary status or whether it is secondary or
whether it is on a fail status as far as all of these
facilities at Whitefish point, the light, the signal and the
light beacon.

Q. Does one indicate and reflect the condition of the
light, the sound signal and the beacon or are they three
separate indications?

A. There are actually four separate indicators.

Q. What is the fourth indicator?

A. The monitor itself, whether it is operative.

Q. Do you recall what presentation was denoted on Whitefish
Point at about the time the Fitzgerald or the Fitzgerald
incident was going on?

A. Not at that time. Previous to that --

Q. Yes.

A. -- I had known that it was inoperative and then one of
the men that handles this piece of gear had come in and it was
operative and inoperative and getting back to where it was
operating properly and then it failed again, and this went on, and it just happened on and off for I don't know how long.

Q. What time was that?

A. That was approximately, to my knowledge, around 1730.

Q. And who was that individual that was trying to re-establish the beacon or the light?

A. Boatswain Mate 1 Cox.

Q. Did he go to Whitefish Point to do this or was he able to do it locally at the Soo or how does that work?

A. He was able to do it from the gear itself at the Soo.

Q. Do you know what that entailed?

A. I don't know a whole lot about it. I know it has to be reset and interrogated and at times it will come back to normal.

Q. Is this within your bailiwick or is that someone else's responsibility?

A. That was someone else's responsibility.

Q. How about monitoring to see whether it is in a normal mode or abnormal mode? Does that come under the radioman?

A. No, sir, it doesn't.

Q. Who does that?

A. Possibly BM 1 Cox, or possibly the controller on watch at Soo Control. I am not really sure, but it doesn't fall under my responsibilities.

Q. Although the indicators are there close to your console
position, is that your testimony?

A They are out around on the back of the console in the
next room, just right at the doorway, but they actually sit
in the next room.

Q Mr. Branch, did you look at those three indicators
for Whitefish radio beacon at 1730 or thereabouts?

A Yes, sir, I did notice that.

Q What indicators were on? What indicators were off at
that time?

A At the time I noticed them, all the facilities up
there were inoperative, the sound signal, radio beacon and
the light.

Q And how about the power, or was there a fourth
indication?

A I really don’t remember about the monitor.

Q But you do remember that the light, the radio beacon and
the sound signal were all in the off position?

A Yes, sir.

Q Did you ever look at it after 1730?

A No, sir, not in depth. I was very busy that night
with the several outages that we had.

Q How about any period before 1730, do you recall looking
at the status of the beacon or the light beacon and sound at
Whitefish Point?

A No, sir, unless it was an earlier time. It could have
been as early as 1700 when I noted it at the time that I am
talking about. It is really an approximate time.

Q. From 1700 to 1730, just an approximation?
A. Yes.

Q. Did you receive any report over the radio that
Whitefish Point light, radio beacon or sound signal were
inoperative from any vessel?
A. No, sir. I received a call from Station Grand Marais
stating that the Fitzgerald had called and requesting as to
whether or not it was operative.

Q. And your response to that was that --
A. That it was inoperative.

Q. And that was based on your observation of the
indicators, is that right?
A. Yes, sir.

Q. About 1700 or 1730?
A. Yes, sir, approximately.

Q. What time was that that Grand Marais queried you on
the beacon?
A. Approximately 1730.

Q. Was there anyone else on watch with you or were you
standing alone?
A. It is a one-position watch. I was the only one on.

Q. Who was the OD?
A. Chief Petty Officer Moore.
Thank you.

CAPTAIN ZABINSKI: That's all I have,

Admiral.

REAR ADMIRAL BARROW: Off the record momentarily.

(Discussion had off the record.)

REAR ADMIRAL BARROW: Back on the record.

EXAMINATION

By Rear Admiral Barrow:

Q. Mr. Branch, just a few questions here.

Do you recall in your conversations with the Steamer Anderson, either the first call or the second one, discussing with him an emergency involving a 16-foot boat which was overdue?

A. No, sir. I remember the boat being overdue, the 16-foot boat being overdue, but I don't recall a conversation between myself and them as to it.

Q. You don't recall anything at all passing this on to the Anderson at that time?

A. Not at that time, no, sir.

Q. Nor at any time?

A. No, sir, I don't recall.

Q. Was there anyone in the radio room with you during any of your watch assisting you in the communications?

A. Yes, there were. There were persons -- the controller
at one time came into radio to help me out.

Q  What time was that?
A  That was later on in the night. That was after -- near
the end of my watch sometime, approximately maybe around 0400.

Q  But during the period of time that you were talking
with the Anderson on the two occasions that you have
testified that you talked with them, and during the time
when you tried to contact the Fitzgerald, was there anyone in
the radio room with you?
A  Yes, sir, I believe that Mr. Ensign Hawvermale at one
time was in there, and also Chief Moore. I believe he was in
there at one time.

Q  Do you recall if either of those people used the radios
to communicate with the Anderson or gave you any assistance
during that period?
A  I don't believe so, sir. I believe they did help me
out, but I think I was the only one on the radio itself.

Q  To the best of your knowledge, are all the conversations
that took place with the Steamer Anderson accounted for in
this log of the 10th and 11th of November?
A  Yes, sir.

Q  You don't know of any other conversations that took
place with them?
A  No, sir.

Q  This is, of course, a typewritten log. I understand you
to have said that you were very busy during that period?

When would the precise items have been typed into this
log?

A. I am not sure I understand your question.

Q. You have indicated in the conversation with the Anderson
here that that conversation was ended at 0132 Greenwich time,
and that that time was the conclusion of that message.

Now, you didn't type that out right away.

When was that entry typed in? Do you know?

A. I don't really recall. It was soon after, but as to
whether I sat right down and did it or even up to five minutes
later, I can't tell you.

Q. I see. If it did take five minutes later, would you
have had some notes from which to set this down?

A. Yes, sir. I do scribble notes for myself to go back
over them.

Q. Then you are saying that what you have put down here would
have been -- you made some pencil notations of the text of
what came in, plus the time; is that what you are saying?

A. Yes, sir. I do that quite often.

Q. If you are busy, this is something that you do?

A. Yes.

Q. If that would be the case here, would you still have
those notes or not?

A. No, sir.
Q. You completed the radio log for that specific date prior to the time that you went off watch?
A. Yes, sir.
Q. This is part of your procedure. You don't leave until you actually have made out the log, the typewritten log?
A. That's correct.

REAR ADMIRAL BARRON: Mr. Murphy?

EXAMINATION

By Mr. Murphy:

Q. Mr. Branch, I am a little confused with these various times, and I see an R in your records, which stands for Romeo; is that correct?
A. Yes, sir.
Q. And what is that in time that I would recognize, Eastern Standard Time?
A. Yes.
Q. That is Eastern Standard Time?
A. Yes.
Q. So this radio log to which these gentlemen have been referring, it does have some entries of R time and some entries of Zulu time?
A. No. All the times there would be Greenwich mean time.
Q. That is Zulu time?
A. Yes.
Q. I see. So that 2032 call to which you referred was
converted by you from Zulu time to local time, which was
Eastern Standard Time; is that correct?
A  I am sorry, sir. I don't understand.
Q  You converted it to 2032. I am confusing you.
A  Right.
Q  And that is Eastern Standard Time?
A  Yes.
Q  Thank you, sir. Now, Admiral Barrow just asked you with
respect to that call whether you make notes sometimes,
scribble notes and so forth, and you said sometimes you do.
Do you recall on this occasion whether or not you did
scribble notes?
A  Yes, sir, I believe I did.
Q  You think you did.
Then you at some time later, your present recollection is
that you sometime later put the entry into the log; is that
correct?
A  Yes. It would not be any significant amount of time
later. It could be up to five minutes. If I was exceptionally
busy, it could be up to ten minutes.
Q  In what manner do you make these, in typewritten form?
A  Yes.
Q  And do you scribble these? There are several pages
full of these.
Do you scribble them out and then type it later, or how
do you handle that?

A. On a long conversation such as I had with the Anderson, I wouldn't scribble the whole thing down. I would just make cue words or points that would make me remember what he said.

Q. And when you make notes or scribble the notes, you also scribble the time; is that correct?

A. At a glance, I can generally remember the time, yes, at times I do and at times I don't.

Q. Are these times as accurate as you could make them under the circumstances?

A. Yes, they are.

Q. So from your testimony the times to which you testified are accurate to the best of your knowledge?

A. Yes, they are.

Q. Now, there have been a number of references to that message.

There are some symbols that I don't recognize as a layman.

I would appreciate if you would read me the entire message, so I would understand the message.

A. As far as the Anderson first calling me?

Q. Yes.

A. "Group Soo, this is the Anderson.

"Group Soo. Over.

"This is the Anderson. I am very concerned with the
welfare of the Steamer Edmund Fitzgerald. He was right in
front of us experiencing a little difficulty. He was taking
on a small amount of water, and none of the upbound ships
have passed him. I can see no lights as before and don't
have him on radar. I just hope he didn't take a nosedive.

Over."

Q. And your testimony was you didn’t consider that urgent,
"I just hope he didn't take a nosedive," and you didn't
consider that urgent?

A. As I said, I considered it serious, but at the time
it was not urgent.

It just wasn't not made clear that it was urgent.

Q. Well, that is called a radio log; is that correct?

A. Yes.

Q. And I understood your testimony to be that you
monitor the SAR facility, am I correct?

A. Well, we are the SAR facilities.

Q. The whole area is the SAR facility?

A. The Group Sault Ste. Marie radio room is the SAR
facility.

Q. And so this log refers to a SAR log; is that correct?

A. It is a radio log of whatever we happen to transmit or
receive over the radio that involves us.

Q. Now, we have another log which has been introduced
into evidence here.
The one I was just referring to for purposes of the record is 80-F, and that is your radio log; is that correct?

A. Yes.

Q. We also have in evidence another exhibit, which is 81-H through -S. That is shown to be a Soo Control Daily Traffic Summary, and that also contains some radio entries.

Now, would you tell me what the difference is between that radio log and the one to which you have been referring previously?

A. Ours is a radio log, an abbreviated radio log.

Anything that involves us, receiving or transmitting to somebody that is speaking to us, we log.

Q. Now, who is "Ours"?

A. Group Soo.

Q. All right.

A. And Soo Control, they don't log it word for word. What they do is they summarize what has been said and done and make an entry as such.

Q. Is Soo Control in a different locality than your SAR facility?

A. They are in the next room to us.

Q. They are in the same building but in the next room over?

A. Yes.

Q. A separate individual who is monitoring or operating that radio station?
A. Yes.

Q. And do you recall the night you were on watch who that individual was?

A. Yes, Petty Officer Robert Waard.

Q. And do you know Mr. Waard very well?

A. Yes.

Q. Do you consider him to be a reliable man?

A. Yes.

Q. Do you consider him to be a reliable radio operator?

A. He is not a radioman, but he does his job well.

Q. Would you have expected him to accurately record calls received on his radio that evening?

A. Possibly not in the same manner that I would, due to the fact that he summarizes what goes on and I type exactly what is said.

Q. To the best of your knowledge, as far as you know, he recorded all calls he received on that evening; is that correct?

A. I really don't have any idea.

Q. You haven't any idea that he didn't?

A. I don't have anything to do with him on a normal night.

Q. His duties are as your duties are, to record the calls. Am I correct in that understanding?

A. I don't understand what you mean by record calls.

Q. Do you mean as far as putting them in the radio log?

A. Yes.
A. No. He summarizes, such as if a ship goes to anchor he puts a time down when the ship goes to anchor.

If somebody calls and asks him about the visibility and he returns "Six miles," he does not record something like that whereas I would.

Q. So your testimony here then before the Board is that these pages of calls consisting of -- well, let's just look. We are referring to 85-0, Sault Ste. Marie, Michigan, Guarding 12 and 16. That means guarding Channels 12 and 16?

A. Yes.

Q. And this shows 10 November 1975 as the date; is that correct?

A. Yes.

CAPTAIN ZABINSKI: Mr. Murphy, I don't think the witness saw this. Have you ever seen this?

THE WITNESS: No.

CAPTAIN ZABINSKI: I think if counsel will ask him specific questions on it, I am sure this witness, from what he says, is not familiar with it, nor has he ever seen it before.

MR. MURPHY: I don't intend to ask him any specific questions.

CAPTAIN ZABINSKI: He should see what he is answering to.

REAR ADMIRAL BARROW: Let him take a look at
the exhibit.

(Pause.)

By Mr. Murphy:

Q. Have you had a chance to examine it?

A. To me it is a radio log that they keep at Soo Control. That is about it.

Q. And approximately how many pages of that log refer to the November 10 date, please, sir?

CAPTAIN ZABINSKI: Mr. Murphy, that exhibit speaks for itself. Are you asking him to count the pages?

MR. MURPHY: You are the one that asked me to do it, sir.

REAR ADmirAL BARROW: Would you explain what you are trying to get at?

MR. MURPHY: I am going to ask one question.

By Mr. Murphy:

Q. Your testimony is that of approximately three pages of entries, radio entries in that log, that those entries are made or may be made at random; is that correct?

A. Yes.

Q. Now, there has been testimony, and there is a record here, to the effect that the radio telephone log of the Steamer Arthur M. Anderson shows a radio telephone call to
your facility on the 10th at 2000, and it shows Channel 16
and Channel 12.

I think you testified that 16 is the open channel on
which calls are received?

A. It is calling in distress frequency.

Q. And that is a channel which I think you were monitoring;
is that correct?

A. Yes, it was.

Q. Now, I would like you to assume that the testimony here
has been that the Anderson's time was Eastern Standard Time,
as you have stated that your time was.

That entry indicates, and you can follow it, if you
will, that this call was made, as a matter of fact, the log
shows Eastern Standard Time; that it was at 2000, begin,
end at 2002 on Channels 16 and 12.

Is that customary practice to switch from the Channel
16 to another channel so that 16 may be left open?

A. Yes.

Q. And does that indicate or does that log indicate that
was done?

A. Yes, it does.

Q. Now, Station NOG, do you know what that is?

A. That is Sault Ste. Marie.

Q. Was that your station?

A. Yes, it was.
Q. And it shows the nature of the call as being POS, which I assume -- do you know what that means, by any chance?

A. No, sir.

Q. I don't either, and Lake Superior -- probably means position. The entry reads, if you will follow me, "Called Soo, Fitzgerald, miss," m-i-s-s, and then there is a signature next to it.

Would you tell me, please, whether you recall receiving such a call at that hour that night?

A. No, I don't. Possibly it could have been Soo Control. I don't know.

Q. You have no record in your radio log, and I would like to ask you if you would be good enough to examine the log of the Soo Control and tell me whether there is a record of any such call in that log for that evening?

A. I do not see one.

Q. So that call is not shown in either of the two logs being maintained at Sault Ste. Marie at that particular time on that night?

A. No.

CAPTAIN ZABINSKI: Neither of these exhibits that you have examined?

MR. MURPHY: Would you like those identified for the record?

CAPTAIN ZABINSKI: I think the first one
should be.

MR. MURPHY: I think the first one
has been, and I think I indicated that the second exhibit
was 81-H through -S.

Of course, the radio telephone log to which I
referred of the Steamer Anderson is 35-B.

Q. Mr. Branch, that message that you received from the
Anderson at 2032 was rather lengthy and detailed.

I was wondering whether you were able to maintain
messages of that detail without some sort of device to
assist you.

Were you using a tape or recording device of some type?

A. No, I was not.

Q. And that message was prepared and typed by you as you
previously testified, based upon your memory; is that correct?

A. Yes, sir.

Q. To your knowledge, is there customarily a taking or
recording of either one of the receivers or receiving stations
at the Soo?

A. No.

Q. It is not a customary practice?

A. No, it is not.

Q. Are you in a position where you are located to receive
or pick up radar telephone communications which are
transmitted in the vicinity of Michipicoten and Caribou Island?
A. Well, yes. We can receive them.

Q. Do you frequently?


Q. You indicated previously your Grand Marais monitor was out; is that correct?

A. Yes.

Q. But I thought you testified that still there are times when you can receive calls that that monitor will pick up?

A. Yes.

Q. So I was just asking for information purposes whether your radius or area of control of the station where you were located would also include calls transmitted from the vicinity, from the vessel in the vicinity of Michipicoten and Caribou Island?

A. Yes.

Q. Do you have any record or recollection of having received or having cleared the Fitzgerald attempting to reach Grand Marais approximately at 1530 or 1540 on that date?

A. No, I don't.

Q. You have no recollection?

A. I don't have any recollection of hearing the Fitzgerald himself.

Q. I see. At any time?
A. No.

Q. I see. In other words, you did not hear the Fitzgerald talking with the Anderson at any time?

A. No.

Q. And you did not hear the Fitzgerald talking with any other vessel at any time?

A. No.

Q. Did you hear any other vessel talking with the Fitzgerald at any time?

A. No; I didn't.

Q. And your record is, or you are familiar enough with your record so that you can say while you have no recollection of any such call, you have no record in the vicinity of 1530 or 1540 of any attempts by the Fitzgerald to reach Grand Marais?

A. No, I did not hear the Fitzgerald.

Q. There has been some indication that the automatic weather reporting station at Whitefish Point was out on this occasion, as apparently were numerous pieces of equipment due to the storm.

Are you familiar with the fact there is an automatic weather recording station there?

A. Yes, I am.

Q. Are you familiar with the fact that it was out on this particular night?

A. I really don't recall. There were a lot of things out,
like you said, and you can tell by the log. That is the only way.

Q. Are you familiar enough with the equipment at that automatic recording station to know whether the weather information itself would be recorded?

REAR ADMIRAL BARROW: Counselor, has it been established that there was an automatic recording device?

CAPTAIN ZABINSKI: Was there at Whitefish? There was one at Standard Rock. Is that what you were referring to?

MR. MURPHY: It was my recollection of the evidence that there is one at Standard Rock and at Whitefish Point. If I am incorrect, I stand corrected.

REAR ADMIRAL BARROW: We can ask him if he has any knowledge of it.

By Mr. Murphy:

Q. My only question is directed to -- let us assume that the station were out, if there is any doubt about it, and the explanation for the station being out, as I understand it, was that the power, there was something wrong with the power supply between the station and where the receiver was at the Soo.

Now, my question to you is this, sir: Do you know if
that condition were to occur, do you know whether there is a
recording device at the receiving station which would record
the weather information at the point of reception, even
though the transmission may be out?

Do you see what I am saying?

A. Yes, sir, I know what you are saying, but I really am
not that familiar with that, that I can tell you anything
about it.

Q. Fine. You have no knowledge. Thank you.

MR. MURPHY:

REAR ADMIRAL BARROW:

One moment, sir.

Off the record momentarily.

(Pause.)

REAR ADMIRAL BARROW:

MR. MURPHY:

On the record.

I have no further questions.

REAR ADMIRAL BARROW:

Commander Loosmore?

COMMANDER LOOSMORE:

REAR ADMIRAL BARROW:

CAPTAIN WILSON:

Anything by the Board?

No, sir.

Captain Wilson?

Yes, sir, I have just a
couple.

EXAMINATION

By Captain Wilson:

Q. Mr. Branch, referring again to the conversation that
you had with the Arthur M. Anderson, upon what frequencies were you called? What channels did he call you on?

A. It would probably have been 16.

Q. Did the conversation take place on 16?

A. No, it did not.

Q. Do you recall what channel the conversation took place on?

A. It took place on 22.

Q. Did you, to the best of your recollection, did you shift him to 22 or did he call and ask for an answer on 22?

A. I probably shifted him to 22 or else he shifted me to 22, but either way we were shifted to 22.

Q. I believe you indicated that there was a short delay, as you selected your transceiver.

Was that in this conversation?

A. You mean as I was switching channels, there was a delay?

Q. I thought you had mentioned that you had gone through some selection routine to find the right radio to talk to him on.

A. Yes

Q. And he gave to you no indication of a distress or emergency, is that correct, at that time, I mean?

A. Not distress, no.

Q. If there was a distress or fire emergency, what channel would be used for communications?
2988

1. You had with the Arthur M. Anderson, upon what frequencies
2. were you called? What channels did he call you on?
3. A. It would probably have been 16.
4. Q. Did the conversation take place on 16?
5. A. No, it did not.
6. Q. Do you recall what channel the conversation took
7. place on?
8. A. It took place on 22.
9. Q. Did you, to the best of your recollection, did you shift
10. him to 22 or did he call and ask for an answer on 22?
11. A. I probably shifted him to 22 or else he shifted me
12. to 22, but either way we were shifted to 22.
13. Q. I believe you indicated that there was a short delay,
14. as you selected your transceiver.
15. Was that in this conversation?
16. A. You mean as I was switching channels, there was a delay?
17. Q. I thought you had mentioned that you had gone through
18. some selection routine to find the right radio to talk to him
19. on.
20. A. Yes
21. Q. And he gave to you no indication of a distress or
22. emergency, is that correct, at that time, I mean?
23. A. Not distress, no.
24. Q. If there was a distress or fire emergency, what channel
25. would be used for communications?
If it had to be done immediately, Channel 16 is there for that purpose. It can be used for that.

CAPTAIN WILSON: That's all I have.

REAR ADMIRAL BARROW: Captain Zabinski?

CAPTAIN ZABINSKI: Yes.

EXAMINATION

By Captain Zabinski:

Q. Counselor previously phrased a question to you a while ago about power supply and power failure at Whitefish Point. Do you know anything about what kind of a power supply is available at Whitefish Point?

A. No, I don't. As far as the power, no. All I receive is the teletype, that is what the weather comes in on, and that is the only thing that I see.

Q. So you don't have any knowledge, then, about power supply or power failures at Whitefish Point on the night of the 10th?

A. No, I don't.

Q. Now, in response to counsel's question about logging, which communications you logged, if you heard the Anderson calling the Fitzgerald, would you log that? Are you required to log or keep a log of that call between the two vessels?

A. No, I am not.

Q. What calls are you required to log?
Any conversations that take place over the wire when I am involved, if I am talking.

Q. If it is to you or from you, is that what you are indicating?

A. Yes.

CAPTAIN ZABINSKI: Thank you. That's all I have, Admiral.

REAR ADMIRAL BARROW: Counselor?

MR. MURPHY: Nothing further.

REAR ADMIRAL BARROW: By the Board?

COMMANDER LOOSMORE: No, sir.

REAR ADMIRAL BARROW: We have asked you a number of questions concerning your communications with the Steamer Anderson on the 10th of November and your duties in the radio room at Sault Ste. Marie.

I will ask you now if there is anything that has not been brought out by these questions, which you have knowledge of and which would assist us in our purposes before this investigation.

I would ask you now to tell us about it.

THE WITNESS: No, sir.

REAR ADMIRAL BARROW: Thank you very much. You are excused and you are cautioned not to discuss your testimony with anyone other than counsel until the conclusion of this Marine Board of Investigation.
Thank you.

(Witness excused.)

REAR ADMIRAL BARROW: Off the record momentarily.

(Discussion had off the record.)

REAR ADMIRAL BARROW: Back on the record.

Counselor, we have a few things to straighten out and I think some additional requests for documents to be presented to the Board.

I believe we have two exhibits to enter in, which we have not accounted for and I believe I would ask to take care of those first and then we have other pieces of business to take care of.

COMMANDER LOOSMORE: Yes, sir. When we opened, you stated that we would make the precept of this Marine Board of Investigation Exhibit No. 1, and I replied that it had not yet been received. It has been received and I would request permission to make that Exhibit No. 1.

REAR ADMIRAL BARROW: Mark it Exhibit 1 for identification.

COMMANDER LOOSMORE: When we received Exhibit No. 62, we marked it for identification, but did not enter it into evidence pending a review of it. It has been reviewed and I would request that it
be offered at this time.

MR. MURPHY: Can you identify it, please, sir?

MR. ZABINSKI: What is the exhibit?

COMMANDER LOOSMORE: The precept is Exhibit No. 1 and is a two-page document. Shall I mark that 1-A and -B?

REAR ADMIRAL BARROW: Mark the Exhibit 1-A and -B. That is the precept for the Board and entered into evidence as Exhibit No. 1-A and -B.

MR. MURPHY: No objections, sir. (Exhibit No. 1-A and B was marked for identification and received into evidence.)

CAPTAIN ZABINSKI: What is the other one?

COMMANDER LOOSMORE: The other was Exhibit 62, sir.

REAR ADMIRAL BARROW: Exhibit No. 62, and would you identify that, please?


REAR ADMIRAL BARROW: That was Exhibit 62 for identification.

COMMANDER LOOSMORE: Yes, sir.

REAR ADMIRAL BARROW: Exhibit 62 for
identification will be admitted into evidence as Exhibit 62 without objection.

Are there additional exhibits to be accounted for now?

COMMANDER LOOMIS: Yes, sir, there is one other question.

We received from the company a Xerox, a reduced Xerox copy of the office logs, and entered those as Exhibit 88, and upon reviewing them I find that the reproductions are not 100-percent quality. I have received the originals of the office logs from the company and I would like to reproduce those, obtain satisfactory reproductions of those, and enter the new reproductions, one of the new reproductions, as Exhibit No. 88 before I return those logs.

REAR ADMIRAL BARROW: Yes. As I recall, some of the comments or remarks did not come through on the reproductions.

MR. MURPHY: No objections. I would ask, though, in the meantime, if I may, that as long as the Board has possession of the originals, that if we might have possession of the present reproductions pending --

MR. BINZLEY: We have them.

COMMANDER LOOMIS: Do you still want the
reproductions?

MR. MURPHY: No, we have them. I withdraw that request.

REAR ADMIRAL BARROW: Are there any others, Commander Loosmore?

COMMANDER LOOSMORE: No, sir. My records indicate that we do not have any exhibits which have been marked which have not been received into evidence.

REAR ADMIRAL BARROW: There is additional information which has been asked for, I believe, and has not been furnished. There is some additional material which the Marine Board has requested to be furnished on its own behalf, which has not been furnished, as I understand it.

COMMANDER LOOSMORE: Yes, sir. Do you have any of that information available now, Mr. Murphy?

MR. MURPHY: Well, I know there were some requests made to other people, but I thought that all of the information which had been requested from us had been delivered in hand earlier this week to Captain Ochman or to the Board, as in accordance with the request.

Now, if I am mistaken on that, would you identify it, please?

COMMANDER LOOSMORE: With your permission, I
would like to go through the transcripts and compare a
list of all of the information which has been requested.

REAR ADMIRAL BARROW: This can be done
following the adjournment of the Board. I think there
were one or two additional items which I think the
Board would like to have as exhibits, and I will ask
Captain Zabinski if he would enumerate those.

CAPTAIN ZABINSKI: In this regard, Admiral,
we have some testimony about, evidently, union agree-
ments, special operating conditions and bonuses and so
forth. I would ask that the company provide the copy
of the present current 1975 union agreements as they
pertain to working conditions and so forth.

MR. MURPHY: Fine.

CAPTAIN ZABINSKI: This goes for licensed
and unlicensed personnel.

MR. MURPHY: I would like to ask,
for the record, what is the Board's intention with
respect to the additional information that was furnished
during the recess? Will that become part of the record
or was that purely for information, or will it be marked
as exhibits?

REAR ADMIRAL BARROW: Which information are
you asking about now?

MR. MURPHY: The various documents
that were furnished to the Board during the last recess
or adjournment. I think they were delivered to
Captain Wilson, as I understand it.

COMMANDER LOOSMORE: There is one envelope of
information which has been received but, frankly, we
haven't had time to go through it yet.

I would suggest that perhaps it could be reviewed
and those things which it is felt is needed to become an
exhibit to the record, we can identify it and the other
things could become a part of the administrative portion
of the record.

REAR ADMIRAL BARROW: I think we will have to
look at the specific items to make that determination,
Counselor.

MR. MURPHY: May I approach the
Board for a moment?

REAR ADMIRAL BARROW: Yes, off the record.

(Discussion had off the record.)

REAR ADMIRAL BARROW: Back on the record.

The particular items that were furnished during the
recess will be reviewed and those which are specifically
needed for the record, we will identify and through
correspondence admit into the record.

MR. MURPHY: For the record, the
Board has requested the office logs for the Fitzgerald
with respect to the forward end of the vessel, the log in the pilothouse, and as long as the logs are considered to be of significance to the Board, we would like to also offer to the Board the engineroom office logs for the same period as has been previously requested and I would assume that this would also be of interest to the Board and I would like to offer this.

REAR ADMIRAL BARROW: We will review those also and give them to the recorder.

MR. MURPHY: And with respect to their reproduction, may I ask that if they are to be included in the record that they be reproduced in the same manner, please?

REAR ADMIRAL BARROW: Yes, it will be.

COMMANDER LOOSMORE: At the beginning of this Board, sir, there was a question raised about obtaining copies of the exhibits, and I said that I would make arrangements with the reporter to make the exhibits available to him. My present intentions are that the reporters will have copies of the exhibits for reproduction and distribution by the middle of next week.

REAR ADMIRAL BARROW: All right. Is there anything else to come before the Board at this time?

(NO response.)
REAR ADMIRAL BARROW: The concludes our second session here again on the matter of the sinking of the SS Edmund Fitzgerald on 10 November 1975.

At this specific time, we have no knowledge of witnesses who are apparent to us and whose testimony would be useful to this Board.

I would like to announce for the record, however, that I have requested the Commandant U. S. Coast Guard Authority, and prior to opening this opening session, to conduct an underwater visual survey of the Edmund Fitzgerald. I have not received a formal agreement to that.

I have orally been advised by the Commandant that my request for that was approved. This survey is tentatively scheduled for April the 15th, 1976, or thereabouts, depending upon the weather.

The underwater survey is to be conducted with an unmanned television and still camera-equipped submersible vehicle, called Curve III. It is owned by the U. S. Navy and it will be leased by us to be flown into the area from San Diego.

In arriving at our decision to delay the underwater visual survey, we considered very carefully the typical weather which is available in the Eastern Lake Superior and the ice conditions, and these were the primary
considerations in waiting until spring to conduct the
survey.

    I might point out that the survey that we have in
mind is one which cannot be accomplished in a single day
or two days. It is a rather detailed survey that we
have in mind, and that may very much difficult the
accomplishment of this task during midwinter season.

    Between now and April, members of the Board are
going to review and conduct a detailed analysis of the
evidence and the testimony which we have received thus
far. One member of the Board is scheduled next week
to ride a Great Lakes ore carrier as an observer for
the end of this shipping season. The remainder of the
Board members will also ride ore carriers between now
and the time that the underwater visual survey is
accomplished.

    We also intend to ask for soundings to be taken
between Caribou Island and Michipicoten Island and
Eastern Lake Superior.

    One additional matter that I might ask at this
point is that we certainly at this time have indicated
that we have talked to all of the witness who are
apparent to us at this time and we are always open to
any indication of additional witnesses who may appear
or may become apparent by a review of the testimony
that we have and that anyone having information which
is pertinent to this Board should contact the Chairman
of the Marine Board of Investigation, to the Commander
9th Coast Guard District.

Anything further?

CAPTAIN ZABINSKI: No.

COMMANDER LOOSMORE: No.

REAR ADMIRAL BARROW: At this time, at 1:39,
the Board is adjourned to meet at my call.

(Whereupon, at 1:39 p.m., the hearing in the
above-entitled matter was adjourned, pending
notification.)
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Reduction Change
EXHIBITS
From: Commandant
To: Rear Admiral Winford W. Barrow, 246095191, Chairman

Subj: Marine Board of Investigation; SS EDMUND FITZGERALD, O.N. 277437, sinking in heavy weather on Lake Superior on or about 10 November 1975

1. Pursuant to the authority vested in me by R.S. 4450, as amended, and the regulations thereunder, a Marine Board of Investigation, consisting of yourself as Chairman, Captain Adam S. Zabinski, 097106451, member, Captain James A. Wilson, 272284101, member, and Commander Charles S. Loosmore, 561485192, member and recorder, is hereby ordered to convene as soon as practicable at the Office of the Commander, Ninth Coast Guard District or such other places as deemed necessary to inquire into the sinking of the SS EDMUND FITZGERALD, O.N. 277437 on Lake Superior on or about 10 November 1975.

2. The Board will thoroughly inquire into the matter hereby submitted to it in accordance with the requirements of the provisions of R.S. 4450, as amended, and regulations thereunder, and upon conclusion of its investigation will report to the Commandant the evidence adduced, the facts established thereby, and its conclusions and recommendations with respect thereto. The Board's report shall be submitted to the Commandant (G-MV) with a copy to the Commander, Atlantic Area and the Commandant, Ninth Coast Guard District. A daily summary of what has occurred before the Board shall be transmitted to the Commandant (G-MV).

3. The National Transportation Safety Board has been informed of the convening of this Marine Board of Investigation and will attend the Board's Proceedings. The National Transportation Safety Board's representative will not be a party to the proceedings but may make suggestions concerning the conduct of the investigation.

4. The attention of the Board is directed to the requirements of 46 CFR 4.09-35 which direct that, when further action is indicated, this fact will be brought to the attention of the District Commander, either during or immediately following the investigation and prior to the dispersal of witnesses, in order that prompt action may be taken.

5. Commander Ian Cruickshank, 031302301, Manager, Underwater Safety Project, G-M-2/USP/83, is assigned and will assist the Board as directed by the Chairman. The Commander, Ninth Coast Guard District will furnish such legal assistance as may be required by the Board. When deemed appropriate
Subj: Marine Board of Investigation; SS EDMUND FITZGERALD, O.N. 277437, sinking in heavy weather on Lake Superior on or about 10 November 1975

and within the prerequisite requirements for the proper and orderly functioning of this Board, the District Commander is authorized to negotiate for commercial court reporting services pursuant to 10 USC 2304(a)(4). This authorization satisfies the requirements of C. G. Procurement Regulations 12-3.204(b)(1) for Commandant (G-FS) approval prior to negotiation of contracts for personal and professional services. If District funds are not available, comply with Manual of Budgetary Administration (CG-255), paragraph 3B202-3(c).

O. W. SILEY

Copy to:
CCGD9(m)
OCMI, St. Ignace
Captain Zabinski
Captain Wilson
Commander Loosmore
COMLANTAREA
Chairman, National Transportation Safety Board
CDR Cruickshank
UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Certificate of Inspection

VEssel: ERNDT FITZGERALD

OFFICIAL NUMBER: 277337
CLASS: Freight

GROSS TONS: 13,632
NET TONS: 8,636
LENGTH: 711.2'

HOME PORT: Milwaukee, Wisconsin

OPERATOR: Columbia Transportation Division, Colby Norton Co.
OPERATOR'S ADDRESS: 1220 Hanna Building, Cleveland, Ohio 44115

OWNER: Northwestern Mutual Life Insurance Company
OWNER'S ADDRESS: 720 East Wisconsin Avenue, Milwaukee, Wisconsin 53202

The inspection of the above named vessel having been completed at Toledo, Ohio
on the 27th day of April 1975. Thereby certify that said vessel is in all respects in conformity with the applicable
vessel inspection laws and the rules and regulations prescribed thereunder. The following complement of licensed officers and crew
is required to be carried; included in which there must be 1 Able Seamen and 1 Certified Lifeboatmen and 1 Certified Tankermen:

1. Master
2. Chief Mate
3. 1st Mate
4. 2nd Mate
5. 3rd Mate(s)
6. Radio Officer

1. Chief Engineer
2. 1st Assistant Engineer
3. 2nd Assistant Engineer
4. 3rd Assistant Engineer
5. Firemen/Watertenders
6. Others
7. Deck Maintainers

In addition the vessel may carry 16 other persons in the crew; 16 passengers; 16 persons in addition to the
crew; and 42 Total persons allowed.

Route permitted and conditions of operation: THE GREAT LAKES, THEIR CONNECTING AND TRIBUTARY WATERS.

EQUIPMENT AND INSPECTION DATA

Stability letter issued: April 1975
Drydock: Net load
Tail shaft drawn

Promotion
From: 7500 HP to 900 HP
Dated: Jan. 1976
Pressure vessels examined:

Main boilers: Dated at Detroit, Michigan

Number: 2
Type: 1250 HP

Mr. Combustion Engineering, Inc.

Meetings opened: Dated February 1973
Meetings closed: Dated February 1973

Hydrotest: Dated February 1973

Maximum steam pressure allowed: 525 psi
Superheater 57 set 1904

Fire extinguishers
No. 2 - Class A-II
1 - Class B-II
2 - Fire axes
2 - Fire pumps

PERIODIC REINSPECTIONS

DATE
INSPECTION ZONE

SIGNATURE

H. E. GAFFORD, COXSWAIN, U. S. COAST GUARD
(Officer in Charge, Marine Inspection)

TOLEDO, OHIO

(Inspection Date)
### Status of Surveys and Outstanding Recommendations

**Name of Vessel:** FITZGERALD, EDMUND  
**Builder:** Great Lakes Engineering Works  
**Owner:** Northwestern Mutual Life Ins. Co.  
**Hull No.:** 301  
**Date of Build:** 9-1958  
**Gross Tons:** 13,632  
**Length:** 711'  
**Continuous Machinery:**  
**Last Cycle Completed:** 4-76  
**Ann. Mach. due:** 4-76  
**Boiler Survey due:** 4-76  
**Aux. KW:**  

**Date:** 22 Oct 1975

### Surveys Made

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**Record Number:** 277,437
THIS IS TO CERTIFY that the undersigned surveyors to this Bureau did, at the request of the Owner's Representative, attend the single screw, steel, steamer "EDMUND FITZGERALD" of Milwaukee, Wisconsin, Official No. 277,437, while the vessel lay afloat at Toledo, Ohio, on the 3rd day of February, 1975, and subsequent dates relative to Annual Survey of Hull, Machinery and Boilers and Continuous Machinery Survey and report as follows:

ANNUAL SURVEY
1. The holds, 'tween decks and peaks were examined and found in satisfactory condition.
2. The decks and deck erections were examined and found satisfactory. For weather deck inspection previously carried out, see Report No. C5730 dated 17 October 1974.
3. All parts of the steering arrangements, including the gear, were examined and found satisfactory.
4. Sluice valves, watertight doors in bulkheads and vessel's sides, closing appliances in superstructure bulkheads and for air and sounding pipes were examined and found in satisfactory condition.
5. The ventilator and hatchway coamings, covers and their supports were examined and found satisfactory.
6. Machinery casings, guard rails and all other means of protection provided for openings and access to crew's quarters were examined and found satisfactory.
7. A general inspection was made of the engines, steering machinery, windlass and fire extinguishing apparatus and all found satisfactory.
8. No alterations having been made to the vessel which would affect the load line assignment, the Load Line Certificate GL 27,667 was endorsed on April 9, 1975.

ANNUAL BOILER SURVEY
9. The port and starboard watertube boilers with their superheaters were hydrostatically tested, examined internally and externally; the mountings were removed, examined internally and externally and all found satisfactory. All mounting studs were renewed at this time.
10. Safety valves were operated under steam and set to their allowable working pressure.
CONTINUOUS MACHINERY SURVEY

11. The main propulsion L.P. turbine casing was opened and the rotor, shaft, bearings, couplings, thrust blocks and casing were examined and all found satisfactory and closed in good order.

12. Pumps opened, examined and found satisfactory and closed in good order as follows:
   (a) Cooler pump - starboard side.
   (b) 2 Fire pumps - port and starboard.
   (c) Ballast stripper - starboard side outboard.
   (d) 4 Main ballast pumps - 2 port and 2 starboard.

IT IS RECOMMENDED that item nos. 11 and 12 of this report be credited to vessel's Continuous Machinery Survey.

The Annual Survey of Hull, Machinery and Boilers is complete.

IT IS FURTHER RECOMMENDED that this vessel be retained in her present classification with this Bureau.

[Signatures]
THE NORTHWESTERN LIFE INSURANCE CO.  
c/o OGLEBAY NORTON COMPANY, OPERATORS  
1200 HANNAH BUILDING  
CLEVELAND, OHIO  44115

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FEE AND EXPENSE FOR SURVEY OF: S.S. "EDMUND FITZGERALD"  
AT: TOLEDO, OH  
AS PER ENCLOSED REPORT/CERTIFICATE: TL8051

ON ACCOUNT OF:  
ANNUAL SURVEY OF HULL & MACHINERY   $140.00  
CONTINUOUS SURVEY OF MACHINERY   135.00  
BOILER SURVEY   220.00  

EXPENSES   58.50  
TOTAL   $553.50

Encls: 2 copies report  
3 copies invoice  

PLEASE REMIT TO 45 BROAD STREET, NEW YORK, N.Y. 10004 AND ATTACH GREEN COPY FOR PROPER CREDIT.
# REPORT OF ANNUAL LOAD LINE INSPECTION

<table>
<thead>
<tr>
<th>REPORT NO.</th>
<th>NAME OF SHIP</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL8052</td>
<td>S.S. &quot;EDMUND FITZGERALD&quot;</td>
<td>9 APRIL 1975</td>
</tr>
</tbody>
</table>

**GROSS TONNAGE**

<table>
<thead>
<tr>
<th>Gross Tonnage</th>
<th>Official Number</th>
<th>Port of Registry</th>
<th>Port of Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>13,632</td>
<td>277,437</td>
<td>MILWAUKEE, WI</td>
<td>TOLEDO, OH</td>
</tr>
</tbody>
</table>

**OWNERS**

OGLEBAY NORTON COMPANY

<table>
<thead>
<tr>
<th>ITEM EXAMINED</th>
<th>CONDITION</th>
<th>RECOMMENDATIONS — REPAIRS EFFECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. HATCHWAYS</td>
<td>SATISFACTORY</td>
<td></td>
</tr>
</tbody>
</table>

- Comings, stiffeners, stays, beams, fore and aft, curtains, covers, tarpaulins, cleats, bottims, wedges and lashings

| 2. MACHINERY CASINGS    | SATISFACTORY      |                                    |

- Fiddles, openings, casings, doors, stills, skylights

| 3. FLUSH BUNKER SCUTTLES| NONE              |                                    |

- Attachments

| 4. COMPANIONWAYS        | SATISFACTORY      |                                    |

- Doors, stills, fastenings

| 5. VENTILATORS          | SATISFACTORY      |                                    |

- Comings, supports, deck connections, closing arrangements

| 6. AIRPIPES              | SATISFACTORY      |                                    |

- Closing arrangements

| 7. GANGWAY, CARGO AND   | SATISFACTORY      |                                    |

- COALING PORTS

- In ship's sides and superstructures

| 8. SCUPPERS AND SANITARY| SATISFACTORY      |                                    |

- DISCHARGES

- Valves
<table>
<thead>
<tr>
<th>ITEM EXAMINED</th>
<th>CONDITION</th>
<th>RECOMMENDATIONS — REPAIRS EFFECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. AIRPORTS Deadcovers</td>
<td>SATISFACTORY</td>
<td></td>
</tr>
<tr>
<td>10. GUARD RAILS OR BULWARKS</td>
<td>SATISFACTORY</td>
<td></td>
</tr>
<tr>
<td>11. FREEING PORTS Shutter, bar</td>
<td>SATISFACTORY</td>
<td></td>
</tr>
<tr>
<td>12. PROTECTION AND ACCESS TO CREW'S QUARTERS Gangways</td>
<td>SATISFACTORY</td>
<td></td>
</tr>
<tr>
<td>13. LIFE LINES UNDER DECK PASSAGE</td>
<td>SATISFACTORY</td>
<td></td>
</tr>
<tr>
<td>14. END BULKHEADS OF SUPERSTRUCTURES Closing appliances and fastenings</td>
<td>SATISFACTORY</td>
<td></td>
</tr>
<tr>
<td>15. TIMBER TANKER AND SPECIAL TYPE Supplementary Fittings</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>16. LOAD LINE MARKS</td>
<td>SATISFACTORY</td>
<td></td>
</tr>
</tbody>
</table>

I have surveyed the above mentioned ship and am satisfied:—

(i) that the fittings and appliances for the protection of openings, the guard rails, the freeing ports, and the means of access to the crew's quarters have been maintained in an effective condition, and

(ii) that no alterations have been made to the hull or superstructures which would affect the calculation determining the position of the load lines.

ANNUAL:—

I have endorsed the load line certificate number GL 27,667 as follows:

W. JEANQUART

TOLEDO, OH

9 APRIL 1975

EXTENSION:—

I have extended the load line certificate number as follows:

Signature

Place

Date

Extended until

W. JEANQUART

Surveyor, American Bureau of Shipping

This Certificate is granted subject to the condition that it is understood and agreed that neither the Bureau nor any of its Committees nor any of its Officers, Surveyors, Agents or Employees is under any circumstances whatever to be held responsible for any inaccuracy in any report or certificate issued by this Bureau or its Surveyors or in any entry in Record or other publication of the Bureau or for any of its or their errors of judgment, default or negligence.

<table>
<thead>
<tr>
<th>Fee Expenses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has this survey been carried out at the same time as a corresponding survey required for maintenance of class and for which a fee has been charged?</td>
<td>YES</td>
</tr>
<tr>
<td>If so, give report number</td>
<td>TL8051</td>
</tr>
<tr>
<td>This survey was requested by</td>
<td>Owner's Rep</td>
</tr>
</tbody>
</table>
American Bureau of Shipping
45 BROAD STREET, NEW YORK, N.Y. 10004

Report Number 05730

Cleveland, Ohio 17 October 1974

S/S EDMUND FITZGERALD

COMMENCEMENT OF ANNUAL SURVEY OF HULL

This is to certify that the undersigned Surveyor to this Bureau did, at the request of the Owner's Representative attend the S/S EDMUND FITZGERALD of Milwaukee, Wisconsin Official Number 277, 437 while the vessel lay afloat at Cleveland, Ohio on the 17th day of October 1974 relative to commencement of annual survey of hull and reports as follows:

1. The deck erections were examined and found satisfactory.

2. The weather deck, with all cargo hatches opened, was examined from above, port and starboard in way of all deck penetrations and attachments as well as within the cargo hatch comings and all found satisfactory.

3. Hatch side girders were examined from above deck and all found satisfactory.

The undersigned recommends that this vessel be retained as classed with this Bureau.

R.A. NASH
SURVEYOR

This Certificate is granted subject to the condition that it is understood and agreed that neither the Bureau nor any of its Committees nor any of its Officers, Surveyors, Agents or Employees is under any circumstances whatever to be held responsible for any inaccuracy in any report or certificate issued by this Bureau or its Surveyors or in any entry in Record or other publication of the Bureau or for any of its or their errors of judgment, default or negligence.

Form A.B. 141 Rev. (1/71)
American Bureau of Shipping
S/S EDWARD FITZGERALD

Olcobay Horton Co.
1200 Hanna Bldg.
Cleveland, Ohio 44115

PO 1615

<table>
<thead>
<tr>
<th>CUSTOMER</th>
<th>INVOICE NO.</th>
<th>DATE</th>
<th>BRANCH CODE</th>
<th>VESSEL</th>
<th>I.D. NUMBER</th>
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<tbody>
<tr>
<td>13509</td>
<td>174501</td>
<td>25 Oct 1974</td>
<td>331</td>
<td>EDWARD FITZGERALD</td>
<td>530124</td>
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</table>

FEE AND EXPENSE FOR SURVEY OF:
S/S EDWARD FITZGERALD
Cleveland, Ohio
C5730

AS PER ENCLOSED REPORT/CERTIFICATE:

ON ACCOUNT OF:
Commencement of Annual Survey of Hull & Weather Deck Inspection

Expenses

<table>
<thead>
<tr>
<th>FEE</th>
<th>EXPENSES</th>
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<tbody>
<tr>
<td>$70.00</td>
<td>10.00</td>
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<tr>
<td>TOTAL</td>
<td>$80.00</td>
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</table>

Enc.
Crig & 1 cc report
Crig & 1 cc inv.

PLEASE REMIT TO 45 BROAD STREET, NEW YORK, N.Y. 10004 AND ATTACH GREEN COPY FOR PROPER CREDIT.
### Status of Surveys and Outstanding Recommendations

**American Bureau of Shipping**  
Cleveland, Ohio

<table>
<thead>
<tr>
<th>Name of Vessel</th>
<th>FITZGERALD, EDMUND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Builder</td>
<td>Great Lakes Engineering Works</td>
</tr>
<tr>
<td>Owner</td>
<td>Oglebay-Norton Co., Opns.</td>
</tr>
<tr>
<td>Hull No.</td>
<td>301</td>
</tr>
<tr>
<td>Date of Build</td>
<td>9-1958</td>
</tr>
<tr>
<td>Gross Tons</td>
<td>13,632</td>
</tr>
<tr>
<td>Length</td>
<td>711'</td>
</tr>
<tr>
<td>Hull due</td>
<td>A-7</td>
</tr>
<tr>
<td>AS Hull due</td>
<td>4-75</td>
</tr>
<tr>
<td>Last Dryocked for SS</td>
<td>19APR74</td>
</tr>
<tr>
<td>Last Dryocked for Other</td>
<td>16N0724</td>
</tr>
<tr>
<td>Gauged</td>
<td>4-75</td>
</tr>
<tr>
<td>Ann. Load Line Inspr.</td>
<td>4-75</td>
</tr>
<tr>
<td>Load Line Cert. Exp.</td>
<td>19APR74</td>
</tr>
<tr>
<td>Load Line Cert. may be renewed until</td>
<td></td>
</tr>
<tr>
<td>Ann. Cargo Gear Inspr.</td>
<td>—</td>
</tr>
<tr>
<td>Spec. Cargo Gear Inspr.</td>
<td>—</td>
</tr>
<tr>
<td>Hatches</td>
<td>T/S, C/O</td>
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<tr>
<td>Special Materials</td>
<td>Teak, Over Side, 4-79</td>
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#### Surveys Made

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<thead>
<tr>
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<tbody>
<tr>
<td>D735C</td>
<td>6-9-72</td>
<td>CAS 6-4-72 Prop.stk. (1556)</td>
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<tr>
<td>D7351</td>
<td>6-10-72</td>
<td>CAS 6-4-72 Prop.stk. Temp.386</td>
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<tr>
<td>DL3845</td>
<td>5-1-72</td>
<td>Conv. to Oil. Blk Automation</td>
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<tr>
<td>DL7419</td>
<td>11-7-72</td>
<td>Conv. Asm. - Repl. Inspr.</td>
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<tr>
<td>TL7506</td>
<td>5-5-73</td>
<td>CAS 5-4-73 Cyl. Temp.80K</td>
</tr>
<tr>
<td>TL3666</td>
<td>3-31-73</td>
<td>As Bs, Ams, Oms, RPs</td>
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<tr>
<td>TI3666</td>
<td>3-26-73</td>
<td>Alt.</td>
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<tr>
<td>TL7640</td>
<td>7-30-73</td>
<td>Alt.</td>
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<td>TL7646</td>
<td>2-40-73</td>
<td>Veg. Lining - Prop. Scr.</td>
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<tr>
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<td>6-10-73</td>
<td>CAS 6-4-73 Cyl. Temp.80K - Prop.8K</td>
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<tr>
<td>DL3745</td>
<td>6-11-73</td>
<td>DK00, Own Scr. (14-10-73)</td>
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<tr>
<td>C1557</td>
<td>RMar73</td>
<td>CAS 9Mar73, Cyl. RPs</td>
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<tr>
<td>C5587</td>
<td>1APR74</td>
<td>DK00, Asbs, Alms, SS, Cyl.</td>
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<tr>
<td>C5608</td>
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<td>TI7845</td>
<td>18-17Jul74</td>
<td>CAS 17Jul74, Cyl. Nat.8Ph</td>
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#### Outstanding Recommendations

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<thead>
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<th>Report No.</th>
<th>Date</th>
<th>Cancelled By</th>
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<tbody>
<tr>
<td>D714-7</td>
<td>7-1-74</td>
<td>DL3845 16Nov73</td>
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<tr>
<td>D724-7</td>
<td>4-1-74</td>
<td>DL3845 16Nov73</td>
</tr>
<tr>
<td>TL7524</td>
<td>15-13Jul73</td>
<td>C5587 1APR74</td>
</tr>
<tr>
<td>TL7845</td>
<td>18-17Jul74</td>
<td>CAS 17Jul74, Cyl. Nat.8Ph</td>
</tr>
</tbody>
</table>

**AB 174-A**
## Status of Surveys and Outstanding Recommendations

<table>
<thead>
<tr>
<th>Builder</th>
<th>Name of Vessel</th>
<th>Hull No.</th>
<th>Date of Build</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Lakes</td>
<td>FITZGERALD, EDMUND</td>
<td>301</td>
<td>9-1958</td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Works</td>
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<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SS Hull due.</td>
<td>4-75</td>
<td></td>
<td></td>
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<tr>
<td>AS Hull due.</td>
<td>4-75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last Drydocked for SS</td>
<td>19 Apr 74</td>
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<tr>
<td>Last Drydocked for Other</td>
<td>16 Nov 72, Rep. DL 3844</td>
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<tr>
<td>Gauged</td>
<td>Gaugings Appr'd</td>
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<tr>
<td>Ann. Load Line Insp. due.</td>
<td>4-75</td>
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<td>Load Line Cert. Expires</td>
<td>21 Jan 77, 19 Apr 77</td>
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<tr>
<td>Load Line Cert. may be renewed until</td>
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<td></td>
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<tr>
<td>Ann. Cargo Gear Insp. due</td>
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<td></td>
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<tr>
<td>Spec. Cargo Gear Insp. due</td>
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<td></td>
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<tr>
<td>Hatches</td>
<td>5/1, 7/1, 15/1</td>
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<tr>
<td>Special Materials</td>
<td>De Ice, Ice, Ice, Ice, Ice</td>
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<tr>
<td>Surveys Made</td>
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<tr>
<td>Report No.</td>
<td>Date</td>
<td>Type</td>
<td>Outstanding Recommendations</td>
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<tr>
<td>DL 3850</td>
<td>6-9-72</td>
<td>CM 6-4-72 Property (1558)</td>
<td>B 118-47, 19-54, DL 3845, 16 Nov 73</td>
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<tr>
<td>DL 3851</td>
<td>6-10-72</td>
<td>CM 6-4-72 Property, Temp Test</td>
<td>D 9641-7, 4-10-74, DL 3845, 16 Nov 73</td>
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<tr>
<td>DL 3849</td>
<td>5-1-72</td>
<td>CM 6-4-72 Property, Temp Test, Ice</td>
<td>D 9641-7, 4-10-74, DL 3845, 16 Nov 73</td>
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<tr>
<td>D 9649</td>
<td>11-1-72</td>
<td>CM 6-4-72 Property, Ice</td>
<td>D 9641-7, 4-10-74, DL 3845, 16 Nov 73</td>
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<tr>
<td>TI 7806</td>
<td>5-5-73</td>
<td>CM 6-4-73 Property, Ice</td>
<td>D 9641-7, 4-10-74, DL 3845, 16 Nov 73</td>
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<tr>
<td>TI 3666</td>
<td>3-31-73</td>
<td>AS RS, A US, C US, S PUS</td>
<td>D 9641-7, 4-10-74, DL 3845, 16 Nov 73</td>
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<tr>
<td>TI 3666</td>
<td>3-31-73</td>
<td>AS RS, A US, C US, S PUS</td>
<td>D 9641-7, 4-10-74, DL 3845, 16 Nov 73</td>
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<tr>
<td>TI 7637</td>
<td>7-10-73</td>
<td>CM 6-4-73 Property, Ice</td>
<td>D 9641-7, 4-10-74, DL 3845, 16 Nov 73</td>
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<tr>
<td>TI 7637</td>
<td>7-10-73</td>
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<tr>
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<td>CM 6-4-73 Property, Ice</td>
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<tr>
<td>C 5587</td>
<td>12-15-73</td>
<td>CM 6-4-73 Property, Ice</td>
<td>D 9641-7, 4-10-74, DL 3845, 16 Nov 73</td>
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<tr>
<td>C 5587</td>
<td>12-15-73</td>
<td>CM 6-4-73 Property, Ice</td>
<td>D 9641-7, 4-10-74, DL 3845, 16 Nov 73</td>
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<td>C 5587</td>
<td>12-15-73</td>
<td>CM 6-4-73 Property, Ice</td>
<td>D 9641-7, 4-10-74, DL 3845, 16 Nov 73</td>
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<tr>
<td>C 5587</td>
<td>12-15-73</td>
<td>CM 6-4-73 Property, Ice</td>
<td>D 9641-7, 4-10-74, DL 3845, 16 Nov 73</td>
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</table>

Record Number: S 4/0/74
**American Bureau of Shipping**

**Cleveland, Ohio**

**Status of Surveys and Outstanding Recommendations**

<table>
<thead>
<tr>
<th>Name of Vessel</th>
<th>FITZGERALD, EDMUND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Builder</td>
<td>Great Lakes Engineering Works</td>
</tr>
<tr>
<td>Owner</td>
<td>Northwestern Mutual Life Inc.</td>
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<tr>
<td>Hull No.</td>
<td>301</td>
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<tr>
<td>Date of Build</td>
<td>9-1958</td>
</tr>
<tr>
<td>Cross Tons</td>
<td>13,632</td>
</tr>
<tr>
<td>Length</td>
<td>711'</td>
</tr>
<tr>
<td>SS Hull due</td>
<td>4-75</td>
</tr>
<tr>
<td>AS Hull due</td>
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<tr>
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<tr>
<td>Gauged</td>
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</tr>
<tr>
<td>Load Line Cert.</td>
<td>1947-79</td>
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<tr>
<td>Ann. Cargo Gear Insps. due</td>
<td></td>
</tr>
<tr>
<td>Spec. Cargo Gear Insps. due</td>
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</tr>
<tr>
<td>Load Line Insp. due</td>
<td>4-75</td>
</tr>
<tr>
<td>Load Line Cert. Exp.</td>
<td>1947-79</td>
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<tr>
<td>T.S. Dia.</td>
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<tr>
<td>Aux. KW</td>
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<tr>
<td>Bunker</td>
<td></td>
</tr>
<tr>
<td>Prop. Mach. Type</td>
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</tr>
<tr>
<td>Special Materials</td>
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</tr>
<tr>
<td>Hatches</td>
<td></td>
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<td>Tech. Dept. Reqs.</td>
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**Surveys Made**

<table>
<thead>
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<th>Report No.</th>
<th>Date</th>
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<td>D 7356</td>
<td>6-4-72</td>
<td>CAS 6-4-72, PEM 5ST, K3 (USNS)</td>
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<td>D 7357</td>
<td>6-10-72</td>
<td>CAS 6-10-72, PEM 5ST, Temp, ERS</td>
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<td>DL 3497</td>
<td>5-1-72</td>
<td>CAS 5-1-72, PEM 5ST, Temp, ERS</td>
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<td>DL 7497</td>
<td>11-7-72</td>
<td>CAS 11-7-72, PEM 11-7-72, Temp, ERS</td>
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<td>TL 7506</td>
<td>5-5-73</td>
<td>CAS 5-5-73, PEM 5-5-73, Temp, ERS</td>
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<tr>
<td>TL 3663</td>
<td>3-29-73</td>
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<td>TL 7624</td>
<td>2-10-73</td>
<td>Repaired LE, Prop. Surv.</td>
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<tr>
<td>TL 7637</td>
<td>3-31-73</td>
<td>CAS 3-31-73, Repaired, Interior</td>
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<td>TL 7638</td>
<td>7-31-73</td>
<td>CAS 7-31-73, Repaired, Interior</td>
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**Record Number:**

AB 174-A

**Fitzgerald, Edmund**
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### Status of Surveys and Outstanding Recommendations

**Name of Vessel:** FITZGERALD, EDMUND  
**Builder:** Great Lakes Engineering Works  
**Record Number:** 580124  
**Gross Tons:** 13,672  
**Length:** 711'  
**Type of Machinery:** Continuous  
**Date of Build:** 9-1958  
**Hull No.:** 301  
**Record Number 580124**

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**Tech. Dept. Rec.**  

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- Underwater 12-73  

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Main Prop. Total H.P.: 7500 Total KW Aux. Gen: 1x400 Type Steer: HYDRO ELECTRIC
July 17, 1974

Captain Ernest McSorley
9½ Edmund Fitzgerald
Detroit Marine Post Office
Detroit, Michigan 48222

Dear Captain McSorley:

We are enclosing your new Great Lakes Load Line Certificate
No. GL-27,667 which expires April 19, 1979. Please post this certificate
in the pilot house.

We would appreciate your returning your old certificate
No. GL-25,380-2 so that we may return it to the Bureau for cancellation.

Very truly yours,

W. L. Voegtly

WLV/sjv

Enc.
July 17, 1974

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¾ Edmund Fitzgerald
Detroit Marine Post Office
Detroit, Michigan 48222

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W. L. Voegtly

WLV/aiv
Enc.
American Bureau of Shipping
45 BROAD STREET, NEW YORK, N.Y. 10004

REPORT NO. TL7845

TOLEDO, OHIO 18 JUNE 1974

S.E. EDMUND FITZGERALD

THIS IS TO CERTIFY that the undersigned surveyor to this Bureau did, at the request of the owner's representative, attend the single screw, steel, steamer EDMUND FITZGERALD of Milwaukee, Wisconsin, Official No. 277,437, while the vessel lay afloat at Oregon, Ohio, on the 18th day of June 1974, relative to damage alleged to have been sustained in consequence of making contact with the North West Center Pier of the Sault Ste. Marie Locks on 17 June 1974 while downbound on a voyage from Silver Bay, Minnesota to Toledo, Ohio, in laden condition. For further particulars, see vessel's log book and report as follows:

UPON EXAMINATION FOUND PORT SIDE MAIN DECK TUNNEL

1. Shell plate 1st below sheer strake in way of the main deck was set in slightly to a maximum depth of one half inch, commencing at the second frame aft of the forward watertight bulkhead and running aft for six frame spaces located at the forward end of the port main deck tunnel.

2. The main deck plating was slightly distorted in way of the above mentioned damage.

3. Two web frames and three deck beams were also slightly distorted in way of the above mentioned damage.

4. It is recommended that further examination and repairs as found necessary be dealt with at the vessels next drydocking.

IT IS RECOMMENDED that this vessel be retained in her present classification with this Bureau.

W. Jeannquart
Surveyor

This Certificate is granted subject to the condition that it is understood and agreed that neither the Bureau nor any of its Committees nor any of its Officers, Surveyors, Agents or Employees is under any circumstances whatever to be held responsible for any inaccuracy in any report or certificate issued by this Bureau or its Surveyors or in any entry in Record or other publication of the Bureau or for any of its or their errors of judgment, default or negligence.
OGLEBAY NORTON COMPANY
1200 HANNAH BUILDING
CLEVELAND, OHIO 44115

CUSTOMER INVOICE NO. DATE BRANCH CODE VESSEL I.D. NUMBER
435009 181991 24 JUNE 1974 332 3 S.S. EDMUND FITZGERALD 580124

FEE AND EXPENSE FOR SURVEY OF: S.S. EDMUND FITZGERALD
AT: OREGON, OHIO
AS PER ENCLOSED REPORT/CERTIFICATE: TL7845

ON ACCOUNT OF: STRIKING DAMAGE - CASUALTY
OF 17 JUNE 1974 $70.00

EXPENSES $15.00
TOTAL $85.00

Encls: 2 copies Report
3 copies Invoice

PLEASE REMIT TO 45 BROAD STREET, NEW YORK, N.Y. 10004 AND
ATTACH GREEN COPY FOR PROPER CREDIT.
CUSTOMER  INVOICE NO.  DATE  BRANCH CODE  VESSEL  I.D. NUMBER
435009  181991  24 JUNE 1974  332 3  S.S. EDMUND FITZGERALD  580124

FEE AND EXPENSE FOR SURVEY OF: S.S. EDMUND FITZGERALD
AT: OREGON, OHIO
AS PER ENCLOSED REPORT/CERTIFICATE: TL7845

ON ACCOUNT OF: STRIKING DAMAGE - CASUALTY
OF 17 JUNE 1974

$70.00
$15.00

TOTAL $85.00

Encls: 2 copies Report
3 copies Invoice

PLEASE REMIT TO 45 BROAD STREET, NEW YORK, N.Y. 10004 AND
ATTACH GREEN COPY FOR PROPER CREDIT.
March 7, 1974

American Bureau of Shipping
805 Superior Building
815 Superior Avenue, N.E.
Cleveland, Ohio 44114

Gentlemen:

S/S Edmund Fitzgerald
Official Number 277437

By this letter, we request an extension for dry-docking the S/S Edmund Fitzgerald for special survey until the end of the 1974 navigation season.

The Fitzgerald is laid up at The American Ship Building Company, Lorain, Ohio, and we anticipated putting her in dry dock this month. Because of the backlog of work, the dry dock will not be available until late in April. This vessel was last dry-docked November 16, 1973, at which time the American Bureau of Shipping and the United States Coast Guard were in attendance.

Very truly yours,

EM Jacobsen
Marine Superintendent

rf
American Bureau of Shipping  
45 BROAD STREET, NEW YORK, N.Y. 10004

Report No. C5587

Cleveland, Ohio 19 April 1974

S/S EDMUND FITZGERALD

Drydocking Survey
Propeller Shaft Survey
Annual Survey and Load Line Inspection
Special Periodical Survey of Hull
Continuous Survey of Machinery
Boiler Survey

This is to certify that the undersigned Surveyor to this Bureau did, at the request of the Owner's representative, attend the S/S EDMUND FITZGERALD of Milwaukee, Wisconsin, Official No. 277.437, as she lay afloat and in drydock at Lorain, Ohio, on 22 January 1974 and subsequent dates in order to examine and report on Drydocking Survey, Propeller Shaft Survey, Annual Survey and Load Line Inspection, Special Periodical Survey of Hull, Continuous Survey of Machinery and Electrical Equipment and Main Boiler Survey. For further particulars see report as follows:

DRYDOCKING SURVEY

1. The vessel was placed in drydock and cleaned, the stem, keel, stern frame and outside of plating were examined and found in satisfactory condition.

   For damage repaired at this time, refer to Cleveland Report No. 5544, dated 12 March, 1974 and C5609 and C5610 dated 19 April 1974.

2. The underwater body was sandblasted to the light water line and coated.

3. The rudder and stock were examined, and found in satisfactory condition. The upper rudder trunk bushing was renewed at this time. Steering gear was operated, new bushing installation examined and all found satisfactory.

   Clearances of pintles and carrier guide bearing were checked and considered satisfactory.

   Upon completion of the foregoing, the steering gear was operationally tested and found satisfactory.

4. The sea valves were opened, examined together with nipples, cocks and connections therewith, overhauled as necessary and considered satisfactory.

5. All overboard discharges, sanitary discharges, and other openings in the
March 7, 1974

American Bureau of Shipping
805 Superior Building
815 Superior Avenue, N.E.
Cleveland, Ohio 44114

Gentlemen:

S/S Edmund Fitzgerald
Official Number 277437

By this letter, we request an extension for dry-docking the S/S Edmund Fitzgerald for special survey until the end of the 1974 navigation season.

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March 7, 1974

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EM Jacobsen
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Marine Superintendent
S /S EDMUND FITZGERALD
Dry docking Survey
Propeller Survey
Annual Survey and Load Line Inspection
Special Periodical Survey of Hull
Continuous Survey of Machinery
Boiler Survey

This is to certify that the undersigned Surveyor to this Bureau did, at the request of the Owner's representative, attend the S /S EDMUND FITZGERALD of Milwaukee, Wisconsin, Official No. 277,137, as she lay afloat and in drydock at Lorain, Ohio, on 22 January 1974 and subsequent dates in order to examine and report on Dry docking Survey, Propeller Shaft Survey, Annual Survey and Load Line Inspection, Special Periodical Survey of Hull, Continuous Survey of Machinery and Electrical Equipment and Main Boiler Survey. For further particulars see report as follows:

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   Clearances of pintles and carrier guide bearing were checked and considered satisfactory.

   Upon completion of the foregoing, the steering gear was operationally tested and found satisfactory.

4. The sea valves were opened, examined together with nipples, cocks and connections therewith, overhauled as necessary and considered satisfactory.

5. All overboard discharges, sanitary discharges, and other openings in the
hull were examined and found in satisfactory condition.

6. The four (4) bladed built-up type propeller was examined and found in satisfactory condition upon completion of removing and repairing two (2) blades. Blades were returned and re-installed on the vessel.

PROPPELLER SHAFT SURVEY

7. The propeller shaft was uncoupled, drawn outboard as far as possible with propeller in place, examined and found satisfactory.

8. The stern bearing was examined and renewed with Ryertex material.

9. The stern gland was repacked.

ANNUAL SURVEY

10. The holds, 'tween decks, tunnels and peaks were examined and found in satisfactory condition.

11. The deck erections were examined and found in satisfactory condition.

12. The weather deck, with all cargo hatches opened, was examined from above, port and starboard, in way of all deck penetrations and attachments as well as within the cargo hatch coamings and all found satisfactory.

13. The hatch side girders were examined from above deck and all found in satisfactory condition upon completion of the following repairs:

The hatch side girder in way of the forward side of No. 14 starboard hatch corner was fractured. Repairs were affected by removing three (3) rivets from each side of the fracture in the spar deck connection. The top flange was radiused out of the girder for about 2 inches and the fracture air arced and welded from both sides. New rivets were driven in the coaming end, hose tested, examined and all found satisfactory.

All eighty-four (84) hatch corner coaming radiuses were increased by another 2 inches by flame cutting the coaming extension in way of the hatch side girder and grinding them smooth.

14. The steering arrangements including Hydro electric steering gear and electric transmission were examined and found in satisfactory condition. The steering gear was operationally tested and found in satisfactory condition.

15. Sluice valves, watertight doors in bulkheads and vessel's sides, closing appliances in superstructure bulkheads and for air and sounding pipes were examined and found in satisfactory condition.

16. Ventilator coamings, hatchway coamings, one piece steel gasketed covers together with their supports and securing appliances were examined and found in satisfactory condition.
17. Machinery casings, guard rails and all other means of protection provided for openings and for access to crew's quarters were examined and found in satisfactory condition.

LOAD LINE

18. Annual Load Line Inspection was carried out at this time and Great Lakes Temporary Load Line Certificate was placed aboard the vessel on 19 April 1974 to expire 18 July 1974 pending issuance of a permanent load line certificate.


19. No alterations were found to have been made to the vessel which would affect the freeboard assignment.

MACHINERY

20. A general inspection was made of the main engine, auxiliary machinery, steering engine, windlass and fire extinguishing apparatus and all found satisfactory.

SPECIAL PERIODICAL SURVEY OF HULL

In addition to preceding Drydocking and Annual Survey items:

21. Load line marks were check, found in accordance with the assignment plainly visible and well marked.

22. The anchor chains were ranged, anchors and chains examined and found satisfactory. Hawse pipes, chain locker and cable holdfasts examined and found satisfactory. Crown pin in port anchor was renewed at this time.

23. The engine and boiler spaces were examined and found satisfactory. The separate fuel oil bunker tanks examined externally and found satisfactory.

24. The bilge drains and cargo hold suction, the air and sounding pipes were examined and found satisfactory.

25. Watertight bulkheads were examined and found satisfactory.

26. Dark hold and machinery space bilges found clean and structure in way of some in satisfactory condition.

27. The double bottom and side tanks were examined internally and externally including sounding rod striking plates and found in satisfactory condition upon completion of the following repairs:

No. 2 ballast tank, starboard - Fracture at junction of tank top to side tank plating veed out and welded, also fracture at outboard keelson to tank top connections in the 8th, 9th and 10th bays from after
17. Machinery casings, guard rails and all other means of protection provided for openings and for access to crew's quarters were examined and found in satisfactory condition.

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25. Watertight bulkheads were examined and found satisfactory.

26. Dark hold and machinery space bilges found clean and structure in way of same in satisfactory condition.

27. The double bottom and side tanks were examined internally and externally including sounding rod striking plates and found in satisfactory condition upon completion of the following repairs:

No. 2 ballast tank, starboard - Fracture at junction of tank top to side tank plating veed out and welded, also fracture at outboard keelson to tank top connections in the 8th, 9th and 10th beams from after
bulkhead veed out and welded.

No. 8 ballast tank, starboard - Fracture in tank top to outboard keelson in the 3rd bay from the after bulkhead veed out and welded.

No. 5 ballast tank, port - Fracture in 2nd keelson from CVK connection to tank top in the 2nd bay from after bulkhead veed out and welded. Also fractured welds on tank top longitudinal angles 1, 2, 4 and 5 from CVK in 6th bay from forward bulkhead arc out and re-welded.

No. 8 ballast tank, port - Fracture in tank top connection to the 2nd keelson from CVK in the 1st bay from after bulkhead veed out and welded.

28. The girders and beams supporting the deck in way of hatch openings and their end connections were examined and found satisfactory.

29. The condition of the vessel did not, in my opinion, warrant drilling of the shell and deck at this time.

CONTINUOUS MACHINERY SURVEY

30. Inspection and work in connection with the continuous machinery survey were carried out at this time as follows and it is recommended that these items be credited to the vessel's current cycles of Continuous Machinery Survey.

31. The following pumps were opened, examined and found satisfactory.

   (a) Port main circulating pump.

   (b) Inboard stripping pump.

   (c) Main cooler pump.

   (d) Inboard fire pump.

   (e) Bilge Pump.

   (f) The port and starboard main steering gear pumps were opened. The forward bearing on the starboard pump and the aft bearing on the port pump were renewed at this time.

32. The pumping arrangements including valves, piping and strainers were examined and found in satisfactory condition. The bilge system was operationally tested, emergency bilge suction valve internally examined, and found in good order. Other systems were tested as considered necessary and found satisfactory.

33. The high-pressure main turbine was opened out and examined including the rotor stationary blading, packing, journal bearings, thrust bearing and flexible coupling; clearances checked, journals bridge-gaged and all found in satisfactory condition.
34. The main reduction gearing, gear casing and foundation were generally examined, and considered satisfactory.

35. The lineshafting and lineshaft bearings were examined and found satisfactory.

36. The dual electro-hydraulic steering machinery was examined, operationally tested, relief valves checked and found satisfactory. All sliding blocks in the steering gear hydraulic arms were turned 180 degrees in their stations, steering gear observed in operation and all found satisfactory.

37. The main propulsion, auxiliary machinery and boiler foundations were examined and found satisfactory.

38. All fire extinguishing apparatus was examined and emergency fire pumps tried out, emergency fuel oil shut-off arrangements and means for closing machinery space openings examined and found in satisfactory condition.

39. The anchor windlass was examined, tried out and found in satisfactory condition.

40. The following air reservoirs were hydrostatically tested, examined externally, relief valves checked and all found satisfactory:

   (a) Ship's control air

   (b) Ship's supply air

41. The main steam piping together with supports were hydrostatically tested, examined and found satisfactory.

**ELECTRICAL**

42. Main and auxiliary switchboards, distribution panels and control apparatus including circuit breakers, fuses and connections were examined and found in good order.

43. Electrical circuits including cables, their supports and connections, were examined so far as accessible, insulation resistances checked and all found in satisfactory condition.

44. Vital service electric motors were examined, insulation resistances checked and found in satisfactory condition.

45. The emergency power source generator and switchboard were examined, tried out and considered satisfactory.

46. The ship's service generators were run under load, circuit breakers and electrical protective devices tested and all found satisfactory.
47. Upon completion of the aforementioned examinations and repairs, the affected machinery and equipment was tried under normal operating conditions and found satisfactory.

**MAIN BOILER SURVEY**

48. The two (2) "D" type water tube, oil fired, automated boilers with superheaters were examined internally and externally together with mountings, safety valves and appendages and found in a satisfactory condition.

49. The boilers were examined externally while subjected to 560 lbs. hydrostatic pressure and found in satisfactory condition.

50. The proper operation of the safety valves was confirmed at this time.

**SUMMARY**

Drydocking Survey carried out. Vessel undocked 19 April 1974.

Propeller Shaft Survey carried out. Tailshaft drawn 17 April 1974.

Annual Survey of Hull and Machinery complete.

Load Line Renewal Survey complete.

Special Periodical Survey of Hull carried out and considered complete.

Annual Boiler Survey carried out and considered complete.

Special Continuous Survey of Machinery and Electrical Equipment, Items No. 27 to 42 of this report.

The undersigned recommends that this vessel be retained as classed in this Bureau.

W.J. White
SURVEYOR
American Bureau of Shipping
S/S EDMUND FITZGERALD

Oglebay Norton Co.
1200 Hanna Bldg.
Cleveland, Ohio 44115
PO 1615

CUSTOMER | INVOICE NO. | DATE       | BRANCH CODE | VESSEL               | LD. NUMBER |
----------|-------------|------------|-------------|----------------------|------------|
435009    | 174219      | 5 June 74  | 331 3       | EDMUND FITZGERAL     | 590124     |

FEE AND EXPENSE FOR SURVEY OF:
S/S EDMUND FITZGERAL
Cleveland, Ohio
C5587 & C5608 & Temporary LL Cert

AS PER ENCLOSED REPORT/CERTIFICATE:

ON ACCOUNT OF:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Survey of Hull incl Drydocking</td>
<td>$415.00</td>
</tr>
<tr>
<td>Special Continuous Survey of Machinery</td>
<td>275.00</td>
</tr>
<tr>
<td>Annual Survey &amp; ALLI</td>
<td>125.00</td>
</tr>
<tr>
<td>Annual Boiler Survey</td>
<td>125.00</td>
</tr>
<tr>
<td>Taillshaft Survey</td>
<td>75.00</td>
</tr>
<tr>
<td>Repairs</td>
<td>270.00</td>
</tr>
</tbody>
</table>

Expenses                          Total

$120.00                           $1355.00

Enc

orig & 1 cc report C5587
orig report C5608
orig TLL Cert
orig & 1 cc inv

PLEASE REMIT TO 45 BROAD STREET, NEW YORK, N.Y. 10004 AND ATTACH GREEN COPY FOR PROPER CREDIT.

AB-AC 104 REV. 4/69 (25M)
# Report of Annual Load Line Inspection

**Report No.:** C5608  
**Name of Ship:** S/S Edmund Fitzgerald  
**Date:** 19 April 1974

<table>
<thead>
<tr>
<th>Gross Tonnage</th>
<th>Official Number</th>
<th>Port of Registry</th>
<th>Port of Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>13,632</td>
<td>277,437</td>
<td>Milwaukee, Wis.</td>
<td>Lorain, Ohio</td>
</tr>
</tbody>
</table>

**Owners:** The Northwestern Mutual Life Insurance Co.  
**Operator:** Oglebay Norton Co.

<table>
<thead>
<tr>
<th>Item Examined</th>
<th>Condition</th>
<th>Recommendations — Repairs effected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hatchways</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>Coamings, Stiffeners, stays,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>beams, fore and afters,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>curtains, covers, karpoulnas,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cleats, battens, wedges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and lashings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Machinery Casings</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>Fiddles, openings, casings,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>doors, sills, skylights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Flush Bunker Scuttles</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>Attachments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Companionways</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>Doors, sills, fastenings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Ventilators</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>Coamings, supports, deck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>connections, closing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>arrangements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Airpipes</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>Closing arrangements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Gangway, Cargo and</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>Coaling Ports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In ship's sides and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>superstructures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Scuppers and Sanitary</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>Discharges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITEM EXAMINED</td>
<td>CONDITION</td>
<td>RECOMMENDATIONS — REPAIRS EFFECTED</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-----------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>9. AIRPORTS Deadcovers</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>10. GUARD RAILS OR BULWARKS</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>11. FREEING PORTS Shutters, bars</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>12. PROTECTION AND ACCESS TO CREW'S QUARTERS Gangways</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>13. LIFE LINES</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>14. END BULKHEADS OF SUPERSTRUCTURES Closing appliances and fastenings</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>15. TIMBER, TANKER AND SPECIAL TYPE Supplementary fittings</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>16. LOAD LINE MARKS</td>
<td>Satisfactory</td>
<td></td>
</tr>
</tbody>
</table>

I have surveyed the above mentioned ship and am satisfied:
(i) that the fittings and appliances for the protection of openings, the guard rails, the freeing ports, and the means of access to the crew's quarters have been maintained in an effective condition, and
(ii) that no alterations have been made to the hull or superstructures which would affect the calculation determining the position of the load lines.

**ANNUAL:**
I have endorsed the load line certificate number as follows:

<table>
<thead>
<tr>
<th>Signature</th>
<th>Place</th>
<th>Date</th>
</tr>
</thead>
</table>

**RENEWAL:**
Temporary Load Line Certificate placed aboard vessel on 19 April 1974, I have renewed the load line certificate number as follows:
to expire 18 July 1974, pending issuance of a Permanent Certificate.

<table>
<thead>
<tr>
<th>Signature</th>
<th>Place</th>
<th>Date</th>
</tr>
</thead>
</table>

Renewed until

W.J. WHITE
Surveyor, American Bureau of Shipping

This Report is issued subject to the condition that it is understood and agreed that neither the Bureau nor any of its Committees is under any circumstances whatever to be held responsible for any inaccuracy in any report or certificate issued by this Bureau or its Surveyors or in any entry in the Record or other publication of the Bureau or for any error of judgment, default or negligence of its Officers, Surveyors or Agents.

**Fee Expenses**
This vessel is classed with this Bureau

Has this survey been carried out at the same time as a corresponding survey required for maintenance of class and for which a fee has been charged? Yes

If so, give report number: C2587

Total

This survey was requested by: Owner's representative
AMERICAN BUREAU OF SHIPPING

APPOINTED BY THE COMMANDANT, U. S. COAST GUARD TO ASSIGN LOAD LINES, UNDER
THE PROVISIONS OF THE COASTWISE LOADLINE ACT OF AUGUST 27, 1935,
AS AMENDED JUNE 20, 1936.

TEMPORARY LOAD LINE CERTIFICATE

FOR VESSELS OF THE GREAT LAKES

Port: Lorain, Ohio
Date: 19 April 1974

This is to Certify that the Load Line markings,
assigned under the provisions of the Coastwise Loadline Act of August 27, 1935, for the

S/S EDMUND FITZGERALD

Official No. 277, 1437

and which have been recommended to the Committee of this Bureau to approve, are as follows:

Center of Diamond, below top of Steel Spar, deck 11' 2"

Maximum Load Line in Midsummer Season, above the center of diamond - 8' 1/2"

" " " in Summer, the center of diamond - -

" " " in Intermediate Seasons, below the center of diamond - -

" " " in Winter, below the center of diamond - 1'"

*Addition for Salt Water, all Seasons - 7"

This certificate is granted pending issuance of the permanent load line certificate, and is
valid till 18 July 1974

W.J. WHITE
Surveyor

*Salt Water allowance is granted only to vessels eligible for voyages in the St. Lawrence River within the limits specified in the Regulations.
This is to certify that the undersigned Surveyor to this Bureau did, at the request of the Owner's representative, attend the single screw, steel, S/S EMUND FITZGerald of Milwaukee, Wisconsin, Official No. 277,1437, while the vessel lay allato at Lorain, Ohio on the 22nd day of January 1974 and subsequent dates, relative to survey and repair to damage alleged to have been sustained in consequence of making contact with the corner of the lock wall at Sault Ste. Marie, Michigan on 4 May 1973 while outbound from Silver Bay, Minnesota to Toledo, Ohio in a laden condition. For further particulars, see vessel's log book, Toledo Report No. 7:7506 dated 5 May 1973 and reports as follows:

UPON EXAMINATION FOUND

Shell Plating - Port Side #2 and #3 Ballast Tanks

1. The aft third length of shell plate #3 in the first strake below sheer strake set in moderatly.

2. The forward three quarter length of shell plate #9 in the first strake below sheer strake set in heavily.

3. The mid length of shell plate #10 in the second strake below sheer strake set in moderately over the top half.

4. Rub bars in way of #9 shell plate in first below sheer strake and #10 plate in second below sheer strake set in way of damaged plates.

Internals

#2 Ballast Tank

5. Watertight bulkhead between #2 and #3 ballast tanks severely distorted for about 10 feet from main deck across damage shell plating along with three shell frames and three main deck beams severely to moderately buckled.

#3 Ballast Tank

6. Three shell frames, along with five bulkhead stiffeners, bulkhead bracket and one main deck beam moderately to severely buckled.
Main Deck

7. Crop, remove and renew the aft portion of shell plate §3 in the first stroke below sheer strake for about six (6) feet.

RECOMMENDED

1. Crop, remove and renew the forward three quarters length of shell plate §9 in the first stroke below sheer strake for about sixteen (16) feet.

2. Crop, remove and renew the mid length of shell plate §10 in the second stroke below sheer strake for about fifteen (15) feet.

4. Remove and renew rub bar in way of damage shell plating.

Internals

§2 Ballast Tank

5. Crop, remove and renew watertight bulkhead at shell connection for about 10 feet x 2 feet along with the first three shell frames from bulkhead for about 15 feet each and adjacent deck beams for about 4 feet each.

§3 Ballast Tank

6. Crop, remove and renew the first three shell frames aft of watertight bulkhead for about 15 feet each. Also, five (5) bulkhead stiffeners, one bulkhead bracket and one (1) deck beam.

Main Deck

7. Crop, remove and renew a section of main deck from the shell connection inboard for about 18 feet x 2 feet. Also, crop and renew one (1) deck frame for about 6 feet x 4 feet along with the first shell stringer channel for about 12 feet.

Note: Upper span of plate renewal at §0 and §2 shell plates in first stroke below sheer to be riveted, remaining seams, butts and internals to be welded.

The above recommended repairs were carried out, examined during and upon completion, hose tested and all found satisfactory.

The undersigned recommends that this vessel be retained as classed with this Bureau.

First visit: 22 Jan 1974
Last visit: 12 March 1974

[Signature]
Columbia Transportation Division
Oglebay Norton Company
1200 Hanna Building
Cleveland, Ohio 44115

Attention: Mr. E. M. Jacobsen,
Marine Superintendent

Subject: S/S EDMUND FITZGERALD
G.L. Engineering Works Hull 301
Deferred Drydocking

Gentlemen:

Our letter of 15 March 1974 advised the status of surveys and that further extension of the load line certificate under 1973 amended load line regulations would have to be authorized by the Commandant, U.S. Coast Guard.

By their letter to Columbia Transportation Division, dated 22 March 1974, the Commander, Ninth Coast Guard District, has authorized the Bureau to further extend the load line certificate through 30 June 1974 provided the vessel's condition is satisfactory.

Special Survey of Hull has been commenced afloat including internal examination of innerbottoms which will be credited to the survey at time of drydocking.

Upon completion of all requirements of annual survey and annual load line inspection, the Surveyor, by authority of this letter, may issue a temporary load line certificate to expire 30 June 1974.

Very truly yours,

AMERICAN BUREAU OF SHIPPING
Great Lakes Department

G. H. Palmer, Jr.
Principal Surveyor for Great Lakes

GHP:EV
cc: Capt. J. M. Austin, U.S.C.G.
    Chief, Marine Safety Division
DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

1974 MAR 26 AM 11 08

COL. TRANS. DIV

Columbia Transportation Division
Oglebay Norton Company
1200 Hanna Building
Cleveland, Ohio 44115

Attention Mr. E. M. Jacobsen
Marine Superintendent

Gentlemen:

Please refer to your letter of 15 March 1974 to OCMI, Cleveland, which has been referred to this office for reply. The letter requested extension of Coast Guard dry docking date and extension of the Loadline Certificate for your Steamer EDMUND FITZGERALD, O.N. No. 277437.

As per OCMI, Cleveland, recommendation, it is agreeable that subject vessel's Coast Guard dry docking date be extended through June 1974. Accordingly, she should be docked for U.S. Coast Guard examination prior to 30 June 1974.

Further, by copy hereof, the American Bureau of Shipping is authorized to extend the Loadline Certificate through this same date dependent upon their evaluation of this vessel's condition relative to loadline regulation requirements.

Very truly yours,

J. M. Austin
Captain, U.S. Coast Guard
Chief, Marine Safety Division

By direction of Commander
Ninth Coast Guard District

Copy to:
Mr. G. Palmer, American Bureau of Shipping
OCMI, Cleveland
American Bureau of Shipping
CLEVELAND OFFICE
815 SUPERIOR AVE., N.E., ROOM 255, CLEVELAND, OHIO, 44114
Telephone: (216) 621-2691
TWX 810-421-8182

15 March 1974

RECEIVED

1974 MAR 18 PM 2 45
COL. TRANS. DIV

Columbia Transportation Division
Oglebay Norton Company
1200 Hanna Building
Cleveland, Ohio 44115

Attention: Capt. E. M. Jacobsen,
Marine Superintendent

Subject: S/S EDMUND FITZGERALD
Extension of Drydocking

Gentlemen:

We have your letter of March 7, 1974 advising that due to backlog of work at American Ship Building Co., Lorain the anticipated drydocking of the subject vessel may not be available until late April, and you are therefore requesting that the drydocking be postponed until the end of the 1974 navigating season.

According to our records, Special Survey of Hull became due in December 1973. On occasion of drydocking at Superior, Wisconsin between November 14 and 16, 1973 while the vessel was on dock for propeller repairs the stem, stern frame and all outside shell plating was examined and reported to be satisfactory. Due to the proximity of the anticipated further drydocking the following winter, the sea chests and valves were not opened for examination at that time, tailshaft was not drawn and the examination of anchors and chains which are normally carried out at time of drydocking for Special Survey were not attempted.

Insofar as classification is concerned Sect. 45.25.1 (a) and (b) of the Rules provide for the crediting of a prior drydocking within a year of the due date of Special Survey of Hull. Sect. 45.21.3 provides for a Year of Grace to complete the survey. These requirements of these sections are substantially met with the exception of examination of the sea valves and chests. In consideration of the age of the vessel and the above mentioned circumstances, we are prepared to consider a recommendation from the Surveyor for Year of Grace upon satisfactory completion of Annual Survey of Hull and internal examination of the innerbottoms and side tanks.
AMERICAN BUREAU OF SHIPPING — CLEVELAND OFFICE

TO       Columbia Transportation Div.
         Oglebay Norton Co.
         Cleveland, Ohio  44115

DATE       15 March 1974

If the Year of Grace should be granted the completion of the remaining requirements of the Special Survey may be deferred until November 1974. To remain in class drydocking would be required by that date.

It should also be noted that the tailshaft survey is due December 1975, but completion of the Continuous Machinery Survey cycle was due December 1973. The report of repair of damaged propeller and pintle, DL3044, recommends further examination of propeller blades, inboard shafting and bearings be carried out before completion of the Special Survey of Hull.

Insofar as the load line certificate is concerned, the matter is more complex. Under the original 1930 load line regulations, load line certificate GL-21603 would have been in force until 16 December 1974. Reassignment under 1973 revised regulations, Sect. 42.07-45 (2) limits the term of the certificate to 5 years, which would have reduced the expiry to 16 December 1973. By Sect. 42.07-45 (2)(ii) the certificate cannot be extended beyond 17 March 1974.

Since the vessel was intended to complete Special Survey this Spring a temporary certificate was issued valid until 24 January 1974 and no permanent certificate was issued pending completion of the renewal survey.

Inasmuch as the limit of extension of load line certificate provided by the 1973 amended load line regulations will have been used up, any further extension will have to be directed by instructions from the Commandant, U.S. Coast Guard.

Very truly yours,

AMERICAN BUREAU OF SHIPPING
Great Lakes Department

G. H. Palmer, Jr.
Principal Surveyor for Great Lakes

GHP:EV

cc: Capt. J. M. Austin, Chief, Marine Safety Div.
    U.S. Coast Guard, 9th District, Cleveland
March 7, 1974

American Bureau of Shipping
805 Superior Building
815 Superior Avenue, N.E.
Cleveland, Ohio 44114

Gentlemen:

S/S Edmund Fitzgerald
Official Number 277437

By this letter, we request an extension for dry-docking the S/S Edmund Fitzgerald for special survey until the end of the 1974 navigation season.

The Fitzgerald is laid up at The American Ship Building Company, Lorain, Ohio, and we anticipated putting her in dry dock this month. Because of the backlog of work, the dry dock will not be available until late in April. This vessel was last dry-docked November 16, 1973, at which time the American Bureau of Shipping and the United States Coast Guard were in attendance.

Very truly yours,

EM Jacobsen
Marine Superintendent
This is to certify that the undersigned Surveyor to this Bureau did, at the request of the Owner's representative, attend the S.S. "EDMUND FITZGERALD" of Milwaukee, Wisconsin, Official Number 277,437, while the vessel lay on dry dock at Superior, Wisconsin on the 14th day of November 1973, and subsequent dates, relative to Drydocking Survey, and reports as follows:

Reference is made to Duluth Report No. DL3844 dated 16 November 1973 relative to repairs carried out at this time.

Reference is made to Detroit Report No. D7167 dated 1 December 1971 relative to grounding, casualty of 1 December 1971 and the outstanding recommendation contained therein which was satisfied by the following examination:

1. The stem, stern frame and all outside shell plating examined and considered satisfactory.

2. The rudder, rudder post and rudder stock examined in place and all found satisfactory, the pintle bearing bushing and retainer plate were renewed at this time.

3. The CSHEB propeller examined and all considered satisfactory, one blade renewed at this time.

4. The propeller shaft examined in place, stern bearing weardown measured and all found satisfactory.

The undersigned recommends that this vessel be retained as classed with this Bureau.

H. W. Taylor
Surveyor
American Bureau of Shipping
S.S. "EDMUND FITZGERALD" & Owners

OGLEDAY HORTON CO.
P-01615
1200 Hanna Building
Cleveland, Ohio 44115

<table>
<thead>
<tr>
<th>CUSTOMER</th>
<th>INVOICE NO.</th>
<th>DATE</th>
<th>BRANCH CODE</th>
<th>VESSEL</th>
<th>I.D. NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
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<td>191125</td>
<td>4 Jan 1974</td>
<td>333</td>
<td>EDMUND FITZGERAL</td>
<td>530124</td>
</tr>
</tbody>
</table>

FEE AND EXPENSE FOR SURVEY OF:
AT: Superior, Wisconsin
AS PER ENCLOSED REPORT/CERTIFICATE:

ON ACCOUNT OF:
S.S. "EDMUND FITZGERALD"

DL3845

Dry docking Survey ........................................... $140.00
Expenses ............................................................. 12.00

$152.00

Enclosures:
2 copies Report DL3845
3 copies Invoice

PLEASE REMIT TO 45 BROAD STREET, NEW YORK, N.Y. 10004 AND ATTACH GREEN COPY FOR PROPER CREDIT.
# Report of Annual Load Line Inspection

**Report No.** TL7646  
**Name of Ship:** S/S EDMUND FITZGERALD  
**Date:** 24 October 1973

**Gross Tonnage:** 13,632  
**Official Number:** 277,437  
**Port of Registry:** Milwaukee, WI  
**Port of Survey:** Toledo, Ohio  
**Owner:** The Northwestern Mutual Life Insurance Company

<table>
<thead>
<tr>
<th>Item Examined</th>
<th>Condition</th>
<th>Recommendations — Repairs Effected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hatchways</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>Coamings, stiffeners, stays, beams, fore and afts, carlings, covers, bulwarks, cleats, bolsters, wedges and lashings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Machinery Casings</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>Fiddles, openings, casings, doors, sills, skylights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Flush Bunker Scuttles</td>
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<tr>
<td>Attachments</td>
<td></td>
<td></td>
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<tr>
<td>4. Companionways</td>
<td>Satisfactory</td>
<td></td>
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<tr>
<td>Doors, sills, fastenings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Ventilators</td>
<td>Satisfactory</td>
<td></td>
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<tr>
<td>Coamings, supports, deck connections, closing arrangements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Airpipes</td>
<td>Satisfactory</td>
<td></td>
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<tr>
<td>Closing arrangements</td>
<td></td>
<td></td>
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<tr>
<td>7. Gangway, Cargo and Coaling Ports</td>
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<td>In ship's sides and superstructures</td>
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<td></td>
<td></td>
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<td>CONDITION</td>
<td>RECOMMENDATIONS — REPAIRS EFFECTED</td>
</tr>
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<td>--------------------------------------------------</td>
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<tr>
<td>9. AIRPORTS</td>
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<td>11. FREEING PORTS</td>
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<td>Shutters, bars</td>
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<td>12. PROTECTION AND ACCESS TO CREW'S QUARTERS</td>
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<tr>
<td>Gangways</td>
<td></td>
<td></td>
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<tr>
<td>13. LIFE LINES</td>
<td>Satisfactory</td>
<td></td>
</tr>
<tr>
<td>tunnel passage</td>
<td></td>
<td>REMARKS: A loading manual was</td>
</tr>
<tr>
<td></td>
<td></td>
<td>found on board the vessel stamped</td>
</tr>
<tr>
<td></td>
<td></td>
<td>approved by A.B.S. 10/17/73 and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>by the U.S.C.G. 10/23/73.</td>
</tr>
<tr>
<td>14. END BULKHEADS OF SUPERSTRUCTURES</td>
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<tr>
<td>Closing appliances and fastenings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. TIMBER, TANKER AND SPECIAL TYPE</td>
<td></td>
<td></td>
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<tr>
<td>Supplementary fittings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. LOAD LINE MARKS</td>
<td>Verified</td>
<td></td>
</tr>
</tbody>
</table>

I have surveyed the above mentioned ship and am satisfied:—
(i) that the fittings and appliances for the protection of openings, the guard rails, the freeing ports, and the means of access to the crew's quarters have been maintained in an effective condition, and
(ii) that no alterations have been made to the hull or superstructures which would affect the calculation determining the position of the load lines.

ANNUAL:—
I have endorsed the load line certificate number ________________ as follows:

<table>
<thead>
<tr>
<th>Signature</th>
<th>Place</th>
<th>Date</th>
</tr>
</thead>
</table>

EXTENSION:—
I have extended the load line certificate number ________________ as follows:

<table>
<thead>
<tr>
<th>Signature</th>
<th>Place</th>
<th>Date</th>
</tr>
</thead>
</table>


W. Jeanquart
Surveyor, American Bureau of Shipping

This Certificate is granted subject to the condition that it is understood and agreed that neither the Bureau nor any of its Committees nor any of its Officers, Surveyors, Agents or Employees is under any circumstances whatever to be held responsible for any inaccuracy in any report or certificate issued by this Bureau or its Surveyors or in any entry in Record or other publication of the Bureau or for any of its or their errors of judgment, default or negligence.

Fee
Expenses
Total
This vessel is classed ABS
Has this survey been carried out at the same time as a corresponding survey required for maintenance of class and for which a fee has been charged? No
If so, give report number
This survey was requested by Owner's rep.
FEE AND EXPENSE FOR SURVEY OF: S.S. EDMUND FITZGERALD
AT: Oregon, Ohio
AS PER ENCLOSED REPORT/CERTIFICATE: TL7646

ON ACCOUNT OF:
LOAD LINE RENEWAL $55.00
EXPENSES 11.50
TOTAL $66.50

Encls: Report of Load Line Inspection
1 copy of Temporary Load Line Certificate (original aboard vessel)
3 copies of invoice

PLEASE REMIT TO 45 BROAD STREET, NEW YORK, N.Y. 10004 AND ATTACH GREEN COPY FOR PROPER CREDIT.
AMERICAN BUREAU OF SHIPPING

APPOINTED BY THE COMMANDANT, U. S. COAST GUARD TO ASSIGN LOAD LINES, UNDER
THE PROVISIONS OF THE COASTWISE LOADLINE ACT OF AUGUST 27, 1935,
AS AMENDED JUNE 20, 1936.

TEMPORARY LOAD LINE CERTIFICATE

FOR VESSELS OF THE GREAT LAKES

Port. TOLEDO, OHIO.................................................. Date: 24 OCTOBER 1973

This is to Certify that the Load Line markings,
assigned under the provisions of the Coastwise Loadline Act of August 27, 1935, for the

S/S JOHN FITZGERALD................................................. Official No. 2772427

and which have been recommended to the Committee of this Bureau to approve, are as follows:

Center of Diamond, below top of stock spar

Maximum Load Line in Midsummer Season, above the center of diamond

" " " in Summer, the center of diamond

" " " in Intermediate Seasons, below the center of diamond

" " " in Winter, below the center of diamond

*Addition for Salt Water, all Seasons

This certificate is granted pending issuance of the permanent load line certificate, and is
valid till 24 JANUARY 1974

W. JABQUIST - Surveyor

* Salt Water allowance is granted only to vessels eligible for voyages in the St. Lawrence River within the limits specified in the Regulations.
THIS IS TO CERTIFY that the undersigned surveyor to this Bureau did, at the request of the owner's representative, attend the single screw, steel, steamer EDMUND FITZGERALD of Milwaukee, Wisconsin, Official No. 277,437, while the vessel lay afloat at Oregon, Ohio, on the 2nd day of October 1973, and subsequent date, to be examined and report upon compliance with conditions and requirements for assignment of load lines under The 1973 Revised Regulations and reports as follows:

The vessel was examined and found to comply with following requirements as noted in Cleveland letters dated 13 September and 25 September 1973, and conditions as noted on load line assignment dated 13 September 1973.

1. Additional 1 1/2" x 1 1/2" x 1/8" inverted angle stiffeners were installed on the watertight doors to reduce the spacing to below the maximum spacing noted in Cleveland letter dated 25 September 1973.

2. An additional railing course was added to the existing handrails around the forecastle and poop decks to reduce the opening below the lowest course and the deck to a maximum of 9".

3. The freeing port area was increased 4.5 sq. ft. port and starboard to provide a minimum of 8.4 sq. ft. in the area between the poop after bulkhead and a point 14'-0" aft of that bulkhead.

4. The coamings of four (4) 8" diameter tunnel vents located on the spar deck were raised to a height of 30".

5. Watertight deadlight covers were provided for the fixed port lights in the doors on the forecastle bulkhead and the poop forward and aft bulkheads.

6. Weathertight steel, gasketed, hinged covers are fitted to the line chocks in the windless room.

7. The two 4" diameter sanitary overboard discharge lines from the poop area, located in the engine room, have a screw-down swing check valve as a positive means of closing at the shell.

8. The U.S.C.G. letter of stability dated 26 September 1973, was found on board as evidence from them that they are satisfied with the structural strength of the vessel.

A U.S.C.G. letter dated 26 September 1973, was found on board relative to a waiver of the requirement to have a loading manual on board the vessel; the waiver was for 30 days or until 31 October 1973.
10. The existing load line marks were obliterated and new marks, in accordance with the assignment dated 13 September 1973, were placed on the vessel's sides and verified. A temporary load line certificate was issued and made valid until 31 October 1973.

W. Jeanquart
Surveyor
# Report of Annual Load Line Inspection

**Report No.:** TL7638  
**Name of Ship:** S/S EDMUND FITZGERALD  
**Date:** 3 October 1973

<table>
<thead>
<tr>
<th>Gross Tonnage</th>
<th>Official Number</th>
<th>Port of Registry</th>
<th>Port of Survey</th>
</tr>
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<tbody>
<tr>
<td>13,632</td>
<td>277,437</td>
<td>Milwaukee, WI</td>
<td>TOLEDO, OHIO</td>
</tr>
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**Owners:** The Northwestern Mutual Life Insurance Company

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<tr>
<td>14. END BULKHEADS OF SUPERSTRUCTURES Closing</td>
<td>Satisfactory</td>
<td></td>
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<td>appliances and fastenings</td>
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I have surveyed the above mentioned ship and am satisfied:

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(ii) that no alterations have been made to the hull or superstructures which would affect the calculation determining the position of the load lines.

ANNUAL:
I have endorsed the load line certificate number ........................................ as follows:

<table>
<thead>
<tr>
<th>Signature</th>
<th>Place</th>
<th>Date</th>
</tr>
</thead>
</table>

EXTENSION:
I have extended the load line certificate number ........................................ as follows:

<table>
<thead>
<tr>
<th>Signature</th>
<th>Place</th>
<th>Date</th>
</tr>
</thead>
</table>

A Temporary Load Line Certificate dated 3 October 1973 and valid until 31 October 1973 was placed on board the vessel.

W. JENQUART
Surveyor, American Bureau of Shipping

This Certificate is granted subject to the condition that it is understood and agreed that neither the Bureau nor any of its Committees nor any of its Officers, Surveyors, Agents or Employees is under any circumstances whatever to be held responsible for any inaccuracy in any report or certificate issued by this Bureau or its Surveyors or in any entry in Record or other publication of the Bureau or for any of its or their errors of judgment, default or negligence.

Fee Expenses

<table>
<thead>
<tr>
<th>Total</th>
<th>This vessel is classed ABS</th>
<th>Has this survey been carried out at the same time as a corresponding survey required for maintenance of class and for which a fee has been charged?</th>
<th>If so, give report number</th>
</tr>
</thead>
</table>

This survey was requested by: ____________________________
American Bureau of Shipping

THE NORTHWESTERN MUTUAL
LIFE INSURANCE COMPANY

1200 Hanna Building
Cleveland, Ohio 44115

c/o Oglesby Norton

<table>
<thead>
<tr>
<th>CUSTOMER</th>
<th>INVOICE NO.</th>
<th>DATE</th>
<th>BRANCH CODE</th>
<th>VESSEL</th>
<th>I.D. NUMBER</th>
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<tbody>
<tr>
<td>435009</td>
<td>181776</td>
<td>9 OCT 1973</td>
<td>332 3</td>
<td>S/S EDMUND FITZGERALD</td>
<td>580124</td>
</tr>
</tbody>
</table>

FEE AND EXPENSE FOR SURVEY OF:  
S.S. EDMUND FITZGERALD  
Oregon, Ohio  
TL7637  

AS PER ENCLOSED REPORT/CERTIFICATE:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>RE-ASSIGNMENT OF LOAD LINE UNDER 1973</td>
<td>$115.00</td>
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<tr>
<td>REVISION OF REGULATIONS</td>
<td>$150.00</td>
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<td>TECHNICAL SERVICES</td>
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<td>SPECIAL ATTENDANCE FEES - 10/2/73</td>
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<td>- 10/3/73</td>
<td>25.00</td>
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<td>EXPENSES</td>
<td>19.50</td>
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<tr>
<td>TOTAL</td>
<td>$334.50</td>
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</tbody>
</table>

Encls: 2 copies of report  
Load Line Certificate  
1 copy of Temporary Load Line Certificate (NOTE: original is on board vessel)  
3 copies of invoice  

PLEASE REMIT TO 45 BROAD STREET, NEW YORK, N.Y. 10004 AND ATTACH GREEN COPY FOR PROPER CREDIT.

AB-AC 164 REV. 4/69 (25M)
AMERICAN BUREAU OF SHIPPING

APPOINTED BY THE COMMANDANT, U. S. COAST GUARD TO ASSIGN LOAD LINES, UNDER
THE PROVISIONS OF THE COASTWISE LOADLINE ACT OF AUGUST 27, 1935,
AS AMENDED JUNE 20, 1936.

TEMPORARY LOAD LINE CERTIFICATE

FOR VESSELS OF THE GREAT LAKES

Port: TOLEDO, OHIO ..........................................................  Date: 3 OCTOBER 1973 ..........................................................

This is to Certify that the Load Line markings,
assigned under the provisions of the Coastwise Loadline Act of August 27, 1935, for the
S/S EDWARD FITZGERALD .................................................... Official No. 277,437 ..........................................................

and which have been recommended to the Committee of this Bureau to approve, are as follows:

Center of Diamond, below top of Steel Spar  deck 11'-2"

Maximum Load Line in Midsummer Season, above the center of diamond  - 8'-12"

" " " in Summer, the center of diamond  - -

" " " in Intermediate Seasons, below the center of diamond  - -

" " " in Winter, below the center of diamond  - 4"

*Addition for Salt Water, all Seasons Below Respective Fresh Water Lines  - 7"

This certificate is granted pending issuance of the permanent load line certificate, and is
valid till 31 OCTOBER 1973 ..................................................

Subject to placing aboard the U.S.C.G. approved loading manual as indicated in

W. JEANQUART  Surveyor

* Salt Water allowance is granted only to vessels eligible for voyages in the St. Lawrence River within the limits specified in the Regulations.
GL2-40

Coast Guard Investigation,

EDMUND FITZGERALD Sinking
MARINE BOARD OF INVESTIGATION
OF SINKING OF THE SS EDMUND FITZGERALD
ON LAKE SUPERIOR 10 NOVEMBER 1975

The bulk freighter EDMUND FITZGERALD, owned by the Northwestern Mutual Life Insurance Company of Milwaukee, Wisconsin, and on long-term lease to the Oglebay Norton Company, Cleveland, Ohio, sank on November 10, 1975. She was lost on the east end of Lake Superior off Crisp Point nearly on the International Boundary Line with her entire crew of twenty-nine men and a cargo of taconite ore.

The United States Coast Guard Marine Board of Investigation convened on November 18, 1975. It was held in the auditorium on the 31st floor of the Federal Office Building, 1240 East Ninth Street, Cleveland, Ohio. The Board was composed of Rear Admiral Winfred W. Barrow (Chairman), Captain Adam S. Zabinski (member), Captain James A. Wilson (member), and Commander C. S. Loosmore (recorder). The hearings adjourned on December 13, 1975.

It should be stressed that the purpose of the inquiry was not to fix criminal or civil liabilities. Rather, it was called to determine the cause of the casualty, to the extent possible, to permit the taking of appropriate measures for future promotion of safety of life and property at sea.

The transcript of the investigation and related items were made available to the Center for Archival Collections, Bowling Green State University, for microfilming through the authority and forethought of Captain James A. Wilson, United States Coast Guard. His intent is to insure the availability of the document for future generations of scholars involved in Great Lakes studies.
CENTER FOR ARCHIVAL COLLECTIONS

MARINE BOARD OF INVESTIGATION OF SINKING OF THE SS EDMUND FITZGERALD ON LAKE SUPERIOR 10 NOVEMBER 1975

END

ROLL 3

PLEASE REWIND JULY 12, 1978
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A