UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD

In the Matter of:	)	
SS NORWAY	)	DCA 03 MM 032

Miami, Florida

Tuesday,
June 10, 2003

The above-entitled matter came on for the Interview of Oddvar Tveit, pursuant to Notice, at 2:05 p.m.

APPEARANCES:

For the National Transportation Safety Board:

TOM ROTH-ROFFY
BRIAN CURTIS

For the United States Coast Guard:

CARLOS PAILLACAR
KEN OLSEN
CHRIS OELSCHLEGEL

For the Bureau ~~of~~ Veritas:

MICHEL LAMBERT

For Norwegian Cruise Lines:

JOHN RILEY

For Bahamas Authority:

KEVIN HISLOP

Also Present:

RICHARD LEHRER

I N D E X

P R O C E E D I N G S

2:05 p.m.

Whereupon,

ODDVAR TVEIT

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

MR. ROTH-ROFFY: Good morning -- good afternoon. It's about five minutes after 2:00 and the date is June 10, 2003. We are here to interview the relief or alternate chief engineer on the Norway, Mr. Oddvar Tveit. Is that correct, sir?

THE WITNESS: Yes.

MR. ROTH-ROFFY: Sir, my name is Tom Roth-Roffy and I am an accident investigator with the National Transportation Safety Board in Washington, D.C. The NTSB is a federal government agency responsible for investigating transportation accidents in the United States.

We are here to investigate the accident that occurred on the 25th of May 2003 aboard the SS Norway. Our investigation is strictly a safety investigation. We are interested in determining what happened, what was the cause of the accident, and then making recommendations aimed at preventing similar future accidents.

This is not a legal investigation. The NTSB's investigation is not a legal investigation. We have no desire to assign liability or the rights of any person.

The reason we've called you here is because we believe that you may have some information that may assist us in our investigation. What I'd like now is for each person here in the room to go ahead and introduce themselves.

MR. CURTIS: I'm Brian Curtis with the NTSB, engineering accident investigator.

MR. LAMBERT: Michel Lambert from Bureau Veritas.

MR. OLSEN: Ken Olsen with the Coast Guard, from Washington, D.C.

MR. PAILLACAR: Carlos Paillacar, Coast Guard from Miami Investigations Department.

MR. LEHRER: Richard Lehrer on behalf of the chief engineer.

MR. HISLOP: Kevin Hislop, representing the Bahamas Maritime Authority.

MR. RILEY: John Riley, independent surveyor for NCL.

MR. ROTH-ROFFY: Okay. Thank you. Sir, the way we normally do it is I will lead off with a series

of questions and then when I've asked a number of questions, I'll pass it and we'll go around the table in a clockwise direction and give everybody a chance to ask you a series of questions. Then if need be, we'll make another turn around. Do you have any questions or concerns about the interview process?

THE WITNESS: No.

MR. ROTH-ROFFY: If at any time you feel that you need to take a break for whatever reason, to consult with your representative, please at any time just tell us and we'll be happy to do that. If you have any questions during the interview, please, we'll be happy to respond to them. I'd like it to be as informal as possible, more like a conversation than anything else.

EXAMINATION

BY MR. ROTH-ROFFY:

Q Sir, could you tell us about your background, maybe from when you started going to sea? You know, where you got your education and what types of ships you've worked on?

A Yeah. My name is Oddvar Tveit and I'm born (R) . I had my first trip at sea in '84, on a car ship and was there for six months and then I started as an oiler on the SS Norway in December '84

and was there for two contracts as a oiler.

Then after that I was working shore side in Norway and also some offshore on rigs as a mechanic and a plater, all-in-all, approximately five years.

And then I was hired on the MS Windward the summer of '93 as a repairman and I did that for ten weeks and was transferred to the Norway the first cruise after dry dock in '93. I think it was October, and I have been there ever since.

I started then as a second engineer trainee. I was promoted as a second engineer the summer of '94, 10th of August, and I was promoted to staff chief engineer in April 2000. And the 5th of January this year I started as a chief engineer. So I have one contract on board as chief engineer before vacation. I just came back three days ago. That's roughly it.

Q Could you describe your education or training that you received in the maritime field?

A Yeah. I finished second engineer school in '91 and I went back to finish the chief engineer school for the year of '97/'98. I graduate '98.

Q What license do you hold?

A Class 1, steam and motor.

Q Did you sail as a first engineer aboard the Norway before coming a staff chief?

A No.

Q Could you just for the record describe your duties and responsibilities as a chief engineer? What are you responsible for?

A As the chief engineer, you're responsible for all kind of works that goes on in the engine department and the daily operation of the engine room.

Q Who is your supervisor? Who monitors your work?

A The superintendent for SS Norway is Knut Kingston (phonetic).

Q You alternate with Mr. Sjohaug as chief engineer?

A Yes, I do.

Q Who was your predecessor that had your position before you as chief engineer?

A His name was Bjoern Kleven.

Q K-l-a-v-e-r?

A K-l-e-v --

Q E-r?

A No. N.

Q Kleven?

A Yeah, Kleven.

Q How long was Mr. Kleven a chief engineer on the Norway?

A From the summer of 2000.
Q And do you recall who might have been Mr. Kleven's predecessor in that position?
A That was Peter Sorendal.
Q S-o-r-e-n-d --
A A-l.
Q Sorendal?
A Yeah.
Q Do you know what his tenure was in that position, when he started and when he left? Obviously, he left summer of 2000.
A I don't recall at the moment.
Q Was he a long time chief engineer or relatively short time?
A I would say a long time.
Q When you went aboard as a second engineer in the summer of '94, what were your responsibilities? Were you perhaps in charge of the boiler maintenance or what equipment did you have, if you recall?
A My first contract as a second engineer I think I was in charge of the laundry.
Q What?
A The main laundry and side propellers.
Q And did you have a second contract as second engineer? Oh, you had several I guess.

A I had several, yes.

Q Were you at any time responsible for the boiler repairs, maintenance?

A Yeah, one time.

Q Do you recall what year that was, approximately?

A I think it was the winter of 2000.

Q As far as you recall, you only had one contract as the boiler second engineer?

A Yeah, and not even the whole contract, but there was a moment.

MR. ROTH-ROFFY: Okay. I think that pretty much covers your background and your duty responsibilities and your assignments aboard the Norway. Does anybody have any other questions in this particular area before we go into other areas?

MR. OLSEN: Ken Olsen.

EXAMINATION

BY MR. OLSEN:

Q He was asking you about names of former chief engineers. Were you on board with a Knut Sorebo (phonetic)?

A Yeah.

Q Where did he fit in at that time?

A At the time I've been on board the Norway he

has either been staff chief engineer or chief engineer. Except from the time that I was oiler in the '80s. I think he at that time was a second engineer.

Q During what years was he on board?

A From '93 until spring of '99.

MR. OLSEN: Thank you.

MR. ROTH-ROFFY: Ken, what was that name again?

MR. OLSEN: Knut -- K-n-u-t and I think it's S-o-r-e-b-o.

FURTHER EXAMINATION

BY MR. ROTH-ROFFY:

Q Okay. What I think I'd like to ask you now about is the ship's operating procedures on the boilers, normal operating procedures on the boilers.

We've already spoken to a number of the crew members about how you light them off and how you cool them down and about testing of relief valves and hydro testing, so those are some of the areas I'd like to explore with you.

Testing of the safety valves, the drum safeties and super heater safety valve, can you tell us how often those are tested and how they're normally tested?

A The exact frequency of it I don't recall at

the moment, but the way they do it is they fire with the closed valves so the pressure rises until the valves go off.

Q When you're testing the safety valves, do you put a gag on the other ones other than the one being tested or now do you control the lifting?

A Yes.

Q You do?

A Yes.

Q Who normally witnesses that test of the safety valves?

A That would normally be the first engineer or the chief engineer, I would say.

Q What about the superintendent, Knut, would he be involved in witnessing those tests?

A Not necessarily.

Q How about Bureau Veritas, would they witness those tests?

A Yeah.

Q Do you know if Bureau Veritas or Bahamas Registry would apply some kind of a seal, a lead seal on the safety valve cap to designate that it had been tested or to prevent tampering? Is that something that would normally be done or do you know?

A I don't know.

Q Regarding welding repairs on the drums and headers, are you aware of any such repair work that's been done on any of the boilers on the Norway since you have been working on the Norway?

A Not all the headers, no.

Q Would that include by outside contractors as well as by ship's force, by the crew?

A That would include them, yes.

Q Would the ship's crew typically do such repairs or who would be the repairs on the Norway?

A Nobody will do such repairs.

Q Nobody would?

A No.

Q From the ship's crew?

A Nobody.

Q Nobody at all, ever?

MR. LEHRER: Point of clarity, this is Rich Lehrer. I think you said "that kind of repair." Are you talking about any kind of repair?

MR. ROTH-ROFFY: No, I'm referring to welding repairs on the headers and the drums, the steam drum, the water drum and the water wall header.

THE WITNESS: I am answering the question.

MR. ROTH-ROFFY: Maybe I just need to restate it.

BY MR. ROTH-ROFFY:

Q So it's your opinion that these drums and headers would never be welded on by anybody, ever?

A Not that I know of, no.

MR. LEHRER: Tom, again you said "by anybody." Do you mean any member of the ship's crew?

MR. ROTH-ROFFY: No. No, I was actually referring to any person in any capacity. Basically, outside contractors or boiler repairmen or something.

BY MR. ROTH-ROFFY:

Q Are you familiar with that kind of a repair procedure on drums and headers?

A No.

Q We've heard that Bureau Veritas does what used to be a complete boiler survey every two and a half years. Are you familiar with that particular survey done by the Classification Society?

A I am familiar with that they are doing such survey, yes.

Q Okay. Have you ever been on board when such survey was being done, as either a chief engineer or staff chief engineer?

A Yes.

Q Do you recall the last time that you have been on board when that was done and if you can, which

boilers were done?

A Since I'm not sure, I am not familiar with answering that question.

Q Okay. Well, maybe part of it. Do you recall when the last time you were on board that the Bureau Veritas did a complete boiler survey?

A No.

Q But you do recall it having been done while you were assigned to the ship as a chief engineer or staff chief engineer; is that correct?

A Yes.

Q Do you recall in which port that was done? Or was it done underway or do you recall?

A I don't recall.

Q Do you recall who from the ship's crew accompanied the BV surveyor while he conducted that survey?

A I don't recall.

Q Do you recall if you accompanied the BV surveyor while he conducted that survey?

A I was not.

Q Have you ever accompanied a BV surveyor at any time in your career on the Norway on a complete boiler survey?

A Not on a complete survey, no.

MR. ROTH-ROFFY: Okay. I'm going to pass to Brian.

MR. CURTIS: I'm going to pass on to Ken right now, please.

FURTHER EXAMINATION

BY MR. OLSEN:

Q Is it correct that you worked with Knut Sorebo? Is that correct?

A Yeah.

Q Did he ever discuss with you cracks or fractures or problems with the seams in the boilers?

A No.

Q When you sailed chief engineer, did you ever enter the file cabinets in the chief engineer's office for information, looking for information?

A Yeah.

Q Did you ever look at the boiler folder?

A Not in particular.

Q During times when you may have entered the files, did you ever see this document before? You can take your time to look at it.

A (Reviewing document.) No.

Q So this might be the first time you've ever seen any information regarding cracks or fractures; is that correct?

A That's correct.

MR. OLSEN: No further questions. For the record, the document which was referred to is a report by Babcock, Job Number 188702, Tag 999 for NCL. The consultant was Lloyd Grimaharven (phonetic) and it reflected a history of the boiler cracks, et cetera and I believe the Bates Number assigned by representatives of NCL is E-0015. It came from a file or it was noted File 163, Tag 641, which is the classification for systems.

MR. ROTH-ROFFY: Ken, was that located originally in the chief engineer's office?

MR. OLSEN: I believe so.

MR. RILEY: What was the date of the report?

MR. OLSEN: The date was September 18, 1985.

EXAMINATION

BY MR. PAILLACAR:

Q Chief, this is Carlos Paillacar with NCL Miami. You've been on board since approximately mid '93. While you've been on board, have you ever witnessed a casualty in the engine room, such as a boiler fire or a complete power loss that might have shut down the boilers?

A Yes.

Q What have you witnessed, sir?

A I witnessed boiler shut down and I witnessed a fire behind Boiler 24.

Q The fire behind Boiler 24 was in 1998?

A I don't remember exactly, that might be, yes.

Q And that was due to a hydrostatic test conducted with air on a fuel line?

A Transfer line, yes.

Q Right. That sprayed oil into Boiler 24 and caught on fire?

A Not onto the boiler, but onto the bulkhead behind the boiler, so the fire was actually on the bulkhead. There might have been some fire on the boiler itself as well, but mostly on the bulkhead.

Q Can you describe the damage?

A Electrical only, as far as I recall.

Q Was a survey done on the boiler afterwards that you remember?

A I don't recall.

Q What about power shut downs, like generators shut down that might have shut down the boilers?

A Yeah.

Q How many of those have you witnessed?

A I don't know.

Q Do you have any rough idea? Two, three, five? Rough, ballpark figure.

A I don't recall.

Q Do you remember how long was the longest time that the vessel was without power, therefore without boilers working? What has been the longest time that there was no power?

A Some hours, I don't know exactly.

Q Do you know what actions did the crew take as far as verifying the condition of the boilers afterwards?

A I'm aware of it, yes.

Q What exactly was done?

A The procedure is you have to start over again and follow the procedures for putting the boiler on line. But first of all you need to know the reason for the shut down or the black out, of course.

Q Are you aware if (inaudible) was notified after each one of these instances?

A No.

MR. PAILLACAR: No further questions.

MR. OELSCHLEGEL: I just have one question. Chris Oelschlegel, also with the Coast Guard from Washington.

EXAMINATION

BY MR. OELSCHLEGEL:

Q Chief, when you relief as chief engineer,

have you done that once? Isn't that what you said?

A Yeah.

Q Is there a specific relief process when you're taking over as chief engineer from the chief engineer? Is there a letter that you go through that you sign together that talks about the different machinery and the engineering plant?

A There is.

Q Does it break down the engineering plant into auxiliaries, boilers, turbines, air conditioning and refrigeration? Is it broken down like that or is it just -- can you describe it?

A It's almost like you said. It's broken down to different categories of the engine department.

Q Okay. Were there any specific areas of the engineering plant that you were concerned about upon taking over as chief engineer?

A Not in particular.

MR. OELSCHLEGEL: That's all I have. Thank you.

MR. HISLOP: Kevin Hislop, representing the Bahamas Maritime Authority.

EXAMINATION

BY MR. HISLOP:

Q You'll have to excuse me. Unlike the rest of

he gentlemen here, I've only come in quite recently on the investigation, so I might be covering old ground, but there's something I just want to clear up in my mind with you, if you could help me, please.

It refers to the boiler water itself. You produce the boiler water on board, the distilled water for the boilers?

A Yes.

Q That is through an evaporation process?

A Yeah.

Q Then the boiler water is treated. Are chemicals added to the boiler water?

A Yes, it is.

Q Who right now, what rank of engineer is responsible for the boiler water testing and treatment?

A One of the second engineers.

Q That's part of his duties and responsibilities, to maintain the boiler water in the correct condition as to the boiler manufacturer's recommendations?

A That's correct.

Q Have you ever done it yourself?

A Yeah.

Q What do you test for and what types of tests do you use?

A On the boiler water itself you test for salinity, pH and phosphate.

Q Phosphate?

A Phosphate.

Q Anything else?

A No.

Q When you were doing it yourself, were there occasions when these three parameters fell well outside the manufacturer's recommendations, can you recollect?

A Yeah.

MR. HISLOP: No further questions.

MR. RILEY: No questions.

MR. ROTH-ROFFY: Tom Roth-Roffy, just to follow up on Kevin's questions.

FURTHER EXAMINATION

BY MR. ROTH-ROFFY:

Q Could you describe the occasions during which those parameters fell well outside of the boiler chemical company's recommendations and what action you might have taken in response?

A It depends on what you mean by "well outside," but it was outside the range.

Q Do you remember which parameter was outside?

A All of them.

Q And do you recall what corrective action you

had to take at that time?

A I had to skim the boilers and add chemicals.

Q Do you recall the cause of these problems you had maintaining chemistry?

A The pH and the phosphate is not a problem, it's an ongoing thing. You have to adjust it.

Q Has the vessel had problems with condenser tube failures?

A Yes.

Q Does somebody on board the vessel maintain a record of which tubes have been plugged in the condensers?

A Not exactly which tubes, no.

Q Does the vessel maintain a record of how many tubes have been plugged and the approximate location?

A Yeah.

Q Is that record maintained by the chief engineer or the first engineer or who would maintain that record?

A It is not like a separate record, but it has been counted.

Q Who keeps track of the counting?

A I'm not sure.

MR. ROTH-ROFFY: I jumped ahead of John Riley there and I didn't mean to. Go ahead, John.

MR. RILEY: No. No questions at this time, I'm sorry.

MR. ROTH-ROFFY: Okay. I'll proceed then.

BY MR. ROTH-ROFFY:

Q We've heard from a couple of the engineers about the securing of the boiler procedure and they've described briefly, let me just recap, put fires out, close the stop valves, open the super heater, the vent, I think they call it the frontal vent, for a period of time and then open up all the drains and have the forced draft fan running at about 15 to 20 percent and then just let the boiler pressure drop. Is that your recollection of about how the boilers normally cool down?

A That's roughly it, yes.

Q Okay. Is there a reason why you do not close all of the drains and stops and shut off the forced draft fan as part of your normal cool down?

A I don't know. That's the procedure. If there's any reason, I don't know.

Q Is there a reason that you need to cool the boiler down quickly, an operational requirement of some kind to explain why to keep the forced draft fan running or do you know?

A If you need to do a repair on it, yes.

Q But if there's no repair that needs to be done, would you still keep the fan running on it?

A For a moment of time, yes.

MR. LEHRER: Tom, Rich Lehrer for a point of clarification. I think in your question you mentioned is there a reason why or words to that affect that you need to cool it down quickly.

MR. ROTH-ROFFY: That's a subjective comment, I agree. Is that what your point is?

MR. LEHRER: Yeah. I don't know that he said that it was quickly and you might want to kind of clear that point up maybe a little better.

THE WITNESS: We don't cool it down quickly. That's why you have the one fan on always on the slow load.

BY MR. ROTH-ROFFY:

Q Would you agree that if you shut the fan off that it would cool off at a slower rate than if the fan was running?

A Sure.

Q But you don't know why you keep the fan running as part of the normal procedure?

A You want to ventilate in the beginning and if you need to do maintenance, you continue it running.

Q Have you ever had an occasion to inspect the

sliding feet on any of the boilers?

A I have.

Q Could you describe what you looked at and what you saw?

A I didn't look for something, but I've been looking.

Q Did you find any conditions with those sliding feet that was noteworthy or abnormal in any way?

A No.

Q Who normally does welding repairs of any kind on the Norway?

A That would be the repairmans.

Q Do you recall their names by chance?

A Varder (phonetic), Puchalski, Tomski (phonetic), Kasonofski (phonetic), Kauti (phonetic), Geanik (phonetic), Sigmond (phonetic), Oglan (phonetic). That's all I recall at the moment.

Q Do you happen to know if any of these are certified welders?

A I don't know if they hold a license. I don't know.

MR. ROTH-ROFFY: What I'd like to do now is take about a five-minute break or so, kind of cool and we're going to turn the tape over. Thank you.

(A brief recess was taken.)

MR. ROTH-ROFFY: Okay. It's about a couple minutes before 3:00 p.m. and we are continuing our interview of the relief chief engineer, Mr. Oddvar Tveit. I'll go ahead and pass to Brian.

MR. CURTIS: Brian Curtis.

FURTHER EXAMINATION

BY MR. CURTIS:

Q Regarding hydro testing of the boiler, how frequently and for what reason are the boilers hydro tested, pressure tested?

A It's a part of the classing and other than that, we pressure test it if we have had a leak on it.

Q If you had a leak, to what pressure do you test?

A To its normal working pressure.

Q Which is?

A Sixty-one.

Q As part of the class testing, do you do that on an annual basis or the complete survey? When is class tested?

A I'm not sure.

Q Do you know to what pressure class would test it?

A I'm not sure.

Q Going back to a previous question, when you relieved the other chief engineer, your turn over notes, are those kept on file each rotation?

A Yes.

Q Where are those kept?

A In the ISM office on board.

Q Were these notes kept before the implementation of ISM? Were they kept in the past?

A That I don't know.

Q But they're required as part of ISM?

A Yes.

Q Who else is required in ISM to keep their turn over notes?

A Actually, the ISM is now replaced by the SIMS and all officers on the engine room are required to fill out hand over forms.

Q Would this be a form or would these be notes throughout the trip of the events that have happened?

A It's a form. Different kind of form, depending on what job you have.

MR. CURTIS: That's all I have. Thank you.

MR. LAMBERT: Michel Lambert.

FURTHER EXAMINATION

BY MR. LAMBERT:

Q I just come back on the water treatment. Is

the ship equipped to measure oxygen content of the water of the boiler?

A I don't think so.

Q So never a measurement exists of the oxygen content been made even by an external society? They don't have a measurement determined by an external society?

A We do the testing that is recommended by the deliverer of the (inaudible).

Q And they don't recommend to test the oxygen content of the water for boiler?

A As far as I know, we don't do testing directly on the oxygen. We do pH testing and other tests, but not oxygen testing.

MR. LAMBERT: That's all for me.

MR. OLSEN: Ken Olsen here.

FURTHER EXAMINATION

BY MR. OLSEN:

Q When was the last time the de-aerating steam heater was opened up and inspected?

A Can you repeat this?

Q When was the last time, and I'm not sure if I'm using the right term that you use on your ship, but either the direct contact heater or the de-aerating steam heater, when was the last time that that was

opened up and examined?

A I don't know.

Q If you were to weld in a boiler, to have to weld in a boiler on the inside, what would be the procedures that you'd have to follow?

A First of all, there would be an engineer to tell what to weld and there will be an approved hot work permit and a fireman.

Q Other than welding on the seams, which you've already answered that you've never seen any welding, have you witnessed any other types of welding on the inside of the boiler?

A Yes.

Q Could you tell us what types of welding was done on the inside of the boiler?

A Plugging of generating tubes and super heaters.

Q Plugging of generator tubes and super heaters. Would hot work permits have been required then to do that welding or special paperwork for the ship if you were at sea required?

A We have hot work permit for all kind of welding, except (inaudible).

Q The change over forms, did you say they were kept in the ISM office? Are they currently there now?

A I haven't checked now, but they are normally kept there.

Q And is that up by the master's cabin?

A Exactly.

Q Welding on piping outside of the boiler, is that permitted? Like a surface flow line?

A Like what?

Q The surface flow line or skimming line, is that permitted to be welded upon?

A If it is after the stop valve, yes.

Q Is that not high pressure piping?

A Yes, it is.

Q Just to make it clear, I might be redundant in this question, I can't remember if I got a clear answer or not, but I asked you earlier if Sorebo, whatever his name was, the former chief, ever discussed the fractures with seams of boilers.

Now I'm asking you did anyone ever under any situation talk about fractures or did you ever overhear anyone discuss fractures or cracks or important problems with the boiler weld seams?

A No. Not whatsoever.

MR. OLSEN: That's it.

MR. PAILLACAR: No questions.

MR. RILEY: John Riley.

EXAMINATION

BY MR. RILEY:

Q Chief, you mentioned that you have tested the boiler water yourself. Do you recollect, please, when in your time on the Norway you did carry out boiler water testing?

A (No response.)

Q Approximately.

A I'm guessing about '96, '97.

Q Thank you. And at that time were you also responsible then for dosing the chemicals?

A Yes.

Q Do you recall whether you ever used a chemical called hydrazide?

A Yes.

Q And did you use hydrazide at that time?

A Yes.

MR. RILEY: Thank you. I'm sorry, can I continue with one more? My apologies.

BY MR. RILEY:

Q So during that period then do you remember when they ceased to use hydrazide, if they did stop using hydrazide? Do you recall, please?

A We didn't stop.

Q So do you still use hydrazide at this time,

now, in the current operation of the boiler plant?

A Yes.

MR. RILEY: Thank you.

MR. ROTH-ROFFY: Tom Roth-Roffy again.

FURTHER EXAMINATION

BY MR. ROTH-ROFFY:

Q You mentioned that you do recall that BV had been aboard at some time in the past doing a complete boiler survey. I believe you stated that, is that true? But you didn't recall when?

A That's correct.

Q Do you recall if there has ever been an outside boiler contractor, such as Shebo (phonetic) or whatever, doing an inspection of the boilers? Or Harris Pipe, separately of the Bureau Veritas, a boiler survey?

A Yes.

Q Do you recall which company that was?

A Harris Pipe.

Q Do you recall when that was done?

A Not exactly.

Q Was it during your time as staff chief engineer or as chief engineer?

A Chief engineer. I'm sorry, I think it was in that time either just before I became a chief or just

right after.

Q Do you recall which boilers were inspected?

A Twenty four.

Q And do you recall any of the details of their findings regarding the condition of the boiler?

A I haven't seen the report.

Q Do you recall where that inspection was done? Was it at sea or at a particular port?

A The Port of Miami.

Q And that would have been within the last six months or so or the last year? Six months?

A Yeah.

Q Do you recall the occasion, why they were inspecting that boiler?

A It was to find out the condition of the boiler.

Q Was there a particular problem or concern that led to Harris Pipe doing that inspection or was it just a routine examination or inspection?

A I don't know.

Q Do you recall the name of the person from Harris Pipe that performed that inspection?

A No, I don't.

Q Do you recall the extent of the examination? Did he go into the steam drum, into the water drums?

Did he go into the fire side?

A They were inside in the combustion chamber and I think they were more or less all over the boiler. If they entered the header and the lower drum, I'm not sure.

Q Do you recall who from the ship's crew worked with the surveyor or the inspector?

A I don't recall.

Q When they completed their survey of the boiler or inspection of the survey, did they talk to you about their findings?

A They said they're going to make a report and they didn't mention anything special.

Q They didn't bring any concerns to your attention regarding the condition of the boiler after they completed the survey?

A Not to my attention, no.

Q Do you recall if they did a hydro test in conjunction with this survey of Boiler 24?

A They didn't.

Q Okay. Let's go back in history. Do you recall any other occasions on which outside contractors performed examination of any of the boilers other than 24?

A (Inaudible) examination have been done by

Shebo Engineering.

Q Do you recall which boiler and when?

A Boiler 23, last year.

Q Please describe what was inspected by Shebo, if you recall.

A They inspected -- I was not on board at the moment, but I know that they inspected for re-tubing of the second super heater on Boiler 23. And they did the same thing on the economizer on Boiler 21.

Q Was that done at the same time as 23?

A I'm not sure.

Q When you secure a boiler, for example when you're steaming on three boilers and you go down to two boilers, is there a set routine, schedule or pattern that you use in selecting which boiler is going to be shut down? How do you decide which boiler you want to take down as a routine?

A First of all you need to think about having one boiler on each side, so if you're having three boilers on line, that means that you have two boilers on one side and you've got to take out one of them. You cannot take out the one on the opposite side. That's rule number one.

Other than that, you just look at the running hours and pick one.

Q So you try to equalize the running hours in general or try to plan for maintenance?

A Try not to equal the running hours, because you cannot open more than one boiler at a time.

Q After you've shut down one boiler, for example when going from three boilers to a two-boiler operation, do you normally return that same boiler that you shut down back to operation or would you select another one, if you have a standard way you do that?

A Like you say, you normally light up the same boiler.

Q During the time the boiler is shut down, do you use any type of special lay up procedures, such as addition of hydrazide or nitrogen blanket or anything like that?

A No.

Q Have you ever seen or heard of the boilers being tested to 150 percent of operating pressure?

A Not that I recall.

Q Can you imagine why a boiler would be hydroed to 150 percent, why people would do that?

A Yes.

Q What is your understanding of why a boiler would be hydroed to 150 percent?

A To test if it is strong enough.

Q And by your recollection, you have never heard of these boilers ever being tested to 150 percent, is that correct?

A That's correct.

MR. CURTIS: Brian Curtis. I just have one question.

FURTHER EXAMINATION

BY MR. CURTIS:

Q I don't recall if we asked this before. What is the highest pressure you have seen any of these boilers tested to?

A Seventy, about.

Q Have you ever seen all three safeties -- all four safeties gagged at once, all the safeties gagged at once?

A I haven't been present.

MR. CURTIS: That's all I have. Thank you.

MR. OLSEN: Ken Olsen.

FURTHER EXAMINATION

BY MR. OLSEN:

Q I understand that you secure the third boiler during certain parts of the schedule, the itinerary. Can you tell us how many tons of fuel per day is saved by that practice?

A Not exactly.

Q Has anyone either ashore or on the ship ever discussed with you their concerns about the frequent stopping and starting of the boiler and the problems that might result?

A Yes.

Q Could you tell us what was said and by whom?

A I'm not going to mention names, but it has been brought up in discussions the stress on the boilers of lighting up and shutting down the way that we do, yes.

Q Is stress on a boiler a good thing or is it a bad thing?

A It's a bad thing.

Q You mentioned earlier that you have knowledge or that you are aware of welding on the tubes, specifically the tube -- when you expressed that, on those occasions did you actually look into the drum and know that that was that area as opposed to another area of the drum?

A No, I didn't.

Q The last general question I have is you might not have an answer, but what could be done to prevent similar accidents like the one that happened down below?

A I wish I knew. The answer is I don't know.

MR. OLSEN: Thank you.

MR. PAILLACAR: Carlos Paillacar, Coast Guard Marine Safety Office.

FURTHER EXAMINATION

BY MR. PAILLACAR:

Q Regarding the inspection that was done by Harris Pipe and Shebo, do you know who requested those inspections?

A No, I'm not sure.

Q Do you know who received the reports?

A Not exactly who received it.

Q But would it have been a shipboard personnel or would it have been company personnel ashore?

A The last, company.

Q Company personnel?

A Yes.

Q Would the superintendent know who requested this and where would this report be?

A He should.

Q Regarding the testing, the hydro testing to 150 percent of the maximum load working pressure, there is other equipment on board that you do test to 150 percent of the maximum working pressure, such as your fuel line, in order to comply with Coast Guard requirements under Title 33 (inaudible) regulations.

A Yes.

Q So you're familiar with that 150 percent rule of thumb from the Coast Guard?

A Yes.

MR. PAILLACAR: Okay. That's it.

MR. ROTH-ROFFY: Chris?

MR. OELSCHLEGEL: No questions.

FURTHER EXAMINATION

BY MR. RILEY:

Q When were these boilers manufactured, what year? When were they manufactured?

A At the time the ship was built.

Q So 1960, '61?

A She had her maiden voyage in January '61.

Q Have you ever sailed with any other type of marine steam boiler apart from this?

A No.

Q So these are the other boilers you've served with?

A Yes.

Q You joined the ship originally in '93. In your opinion, in this aging process of the boilers in the ten years, would you say that the frequency and degree of maintenance and repair to the boilers generally has remained constant or has increased

through the fullness of this time period?

A I would say it's about stable.

MR. RILEY: Thank you.

MR. CURTIS: No questions.

MR. ROTH-ROFFY: Tom Roth-Roffy.

FURTHER EXAMINATION

BY MR. ROTH-ROFFY:

Q Sir, have you ever been inside of the steam drum of any boiler on the Norway?

A Never.

Q Have you ever been inside of any water drum or header on any boiler on the Norway?

A Never.

Q Is that because you can't fit or is it because you've never had occasion to or what would that reason be?

A Unfortunately, I don't fit in there.

Q Just for the record, your height is about what, six-seven?

A Six-seven, yes.

Q And you're about 300 pounds or so?

A 340.

Q Not to put you on the stop or anything. Do you know if anybody from the ship's crew goes into the boilers, the drums or the headers?

A They do from time-to-time, yes.

Q Do you know who those persons might be? Do you know if anybody that you know of has been inside of them?

A I can tell you a few that I know for sure have been in.

Q Okay, if you would, please.

A First engineer, Age Lokkebraten.

Q Could you spell that, please?

A First name A-g-e, last name L-o-k-k-e-b-r-a-t-e-n. And Chief engineer Bjoern Anvik and second engineer Paul Neilsen. Second engineer Finn Nicolaisen. Engine technician Skgohaug.

Q Could you spell that last name there again, Skgonhaug last name?

A S-k-g-o-n-h-a-u-g. We have funny names in Norway.

Q Anybody else that you can think of?

A There have been others, but not that I recall at the moment.

Q Is it primarily the officers that go into the drums and headers or would you also send other crew members in there periodically?

A The repairmans go in there if we need to weld (inaudible).

Q Can you recall the last person that you've seen any of these steam drums, water drums or water wall headers, who that was, which boiler and when?

A We have paper inside the drums of Boiler 24 during my period, last contract on board.

Q And that was probably in conjunction with the plugging of tubes?

A Yeah.

Q Any other occasion that you can recall, other than plugging of tubes, where it's like a general inspection?

A I know that chief engineer Bjoern Kleven was there with a representative from the Bureau Veritas when we were (inaudible) in 2001.

Q Do you recall which boilers he might have gone into?

A I was not present, so I am not sure.

Q But you have reason to believe that he actually did go inside or you heard somebody tell you or how would you know that he actually went inside the drums or headers?

A I know for sure that Kleven was inside them. I know for sure, he told me. I think Bureau Veritas was inside, but I'm not 100 percent sure.

Q During your assignment to the Norway have you

heard any discussion about replacement of the boilers? And if so, when and what was the nature of the discussion?

A I have never heard any discussion of replacing the complete boilers, no.

Q You've never heard of anybody making such a recommendation, that the boilers be replaced, for any reason? Or never seen a report or anything like that?

A No.

Q Nobody said anything about it to you?

MR. CURTIS: One last one. Actually, two.

FURTHER EXAMINATION

BY MR. OLSEN:

Q You mentioned that there has been some discussion amongst people concerning stressed caused by lighting off and securing the boilers. Did anyone in those discussions indicate the need that this concern be shared with people ashore, maybe the superintendent or the vice president of operations?

A Not that I know of, no.

Q What do you think would happen --

MR. ROTH-ROFFY: I'm sorry, that's the end of the tape.

(Off the record discussion.)

MR. ROTH-ROFFY: This is the second tape for

our interview with the chief engineer and Ken Olsen was asking questions.

MR. OLSEN: Ken Olsen.

BY MR. OLSEN:

Q If you did not have any problems in a boiler, but you were at the port where you normally shut down one of them and a chief engineer decided I'm going to quit stressing these boilers, I want to keep it lit off, if a chief engineer made that decision without consulting the company, what do you think would happen to him?

A It would be -- probably be responsible for delay for (inaudible), that's for sure. Other than that, I don't know.

Q You said responsible for the delay, but suppose it was where you took one boiler off line, you didn't need the three but you kept the three running and you chose to keep that third one running?

A Oh, I see. We have done that. We have done that.

Q Were you directed by shore side not to do that?

A I haven't.

Q You haven't been?

A No.

Q Is there a bonus incentive for saving fuel for the engineers?

A Yes.

Q Could that be a reason why the boiler is shut down frequently, the one that is not necessarily needed?

A That's a part of the reason, yes.

MR. OLSEN: That's it for now.

MR. PAILLACAR: Carlos Paillacar, Coast Guard.

FURTHER EXAMINATION

BY MR. PAILLACAR:

Q Are you aware of anybody in your engineering department that has been concerned regarding the safety that might have been terminated because of voicing concern?

A No.

Q Are you aware of anybody that has quit because they had safety concerns?

A Not before this accident.

MR. PAILLACAR: That's all.

MR. OELSCHLEGEL: Yes. Chris Oelschlegel with the Coast Guard, I have one question.

FURTHER EXAMINATION

BY MR. OELSCHLEGEL:

Q When you're preparing or in the past when you prepared -- not as chief engineer, but as an engineer on board the Norway, how have you prepared for shipyard periods? In other words, what is your input into the process for providing the specifications for maintenance to be done in the shipyard? Can you describe that?

A First of all we put on what we call a wish list of work to be done and before the spec is complete, the superintendent, together with the ship's management come down to a conclusion on what actions are to be done.

Q I'm sorry, can you repeat the last part of that again? Can you repeat that, please?

A That these points that have been written down is being discussed with or handed over to the superintendent and there will be discussion between the superintendent and the ship's management or engine department in our location and they will find out what to put on the actual spec to be sent to the shipyard.

Q If you have an important or what you consider to be an important maintenance item for a shipyard period, is there a priority assessed or is there a priority given to an item for the shipyard period?

A Can you repeat that question?

Q I'll just simplify it. Are there some items that are recommended by the engineering department for a shipyard period that are not added to the list for the shipyard period?

A That might have happened, but I cannot answer that question.

MR. OELSCHLEGEL: That's all I have. Thank you.

MR. HISLOP: Kevin Hislop.

FURTHER EXAMINATION

BY MR. HISLOP:

Q Since the incident, have you given any consideration to the condition, in your own mind or in discussions, of the other three boilers as they are today?

A I don't know the condition of the three last boilers at the moment. I don't know.

Q Has your confidence in these three remaining boilers changed since the incident?

A It depends on the investigation they're going to do now. I cannot answer at the moment.

MR. HISLOP: Thank you.

MR. RILEY: No questions.

MR. ROTH-ROFFY: Just to follow up on Mr. Olsen's question regarding a bonus or incentive program

for fuel saving.

FURTHER EXAMINATION

BY MR. ROTH-ROFFY:

Q Could you describe that program, please, in as much detail as you can, how it works?

MR. LEHRER: Before you do, I just wanted to get on the record that I'm not sure if this is the kind of questioning concerning the fuel bonus or an existence of that, that still falls within the scope of what we were discussing at the beginning of this investigation.

It strikes me, but maybe on the record you can clarify it for me, that rather than dealing with the cause of what occurred and how to prevent it in the future that that's taking a swing in a different direction.

If that's the case, then I'd like it known. If that's where you're leading, something outside of determining the cause, I'd like to know if that's where it's going.

MR. ROTH-ROFFY: No. There is no shift in direction of the investigation. It's still strictly focused on determining cause and making recommendations to prevent future accidents.

However, before we can determine cause, we

have to gather factual information in a lot of different areas. We don't know the cause yet. We have to look at influencing conditions and factors that may affect procedures, operating procedures, which may in turn influence the cause.

MR. LEHRER: All right.

MR. ROTH-ROFFY: Ken Olsen, would you like to add something to that?

MR. OLSEN: Yes, wholeheartedly. The scope of the investigation is as far as it goes and we need to understand motivations why engineers on board vessels do certain things and if the motivation is financial, it's certainly a valid contribution to the investigation. Did you want anything else?

MR. ROTH-ROFFY: No. That will do it. Does that satisfy your concerns with the scope or the direction of the investigation?

THE WITNESS: I can answer that question very simple, because there is no separate fuel bonus system for us.

MR. ROTH-ROFFY: Okay. I guess probably we misunderstood your response.

MR. OLSEN: Can I?

MR. ROTH-ROFFY: Go ahead, Ken Olsen.

FURTHER EXAMINATION

BY MR. OLSEN:

Q Is there a bonus based on general operating expenses, including maintenance, repair, fuel, lube oil as such?

A I feel like not answering that question.

MR. ROTH-ROFFY: Continue.

BY MR. OLSEN:

Q Last question, I'm following up on Kevin's question and I forgot the term that he used, but what could be done in terms of tests, inspections or operating procedures that would insure your confidence in the operation of the remaining boilers?

A At this point?

Q Yes.

A There needs to be a serious classification and whatever repair to be done, to be done properly.

MR. ROTH-ROFFY: Tom Roth-Roffy. Let me follow up on the bonus thing, incentive.

FURTHER EXAMINATION

BY MR. ROTH-ROFFY:

Q You said you that you preferred not to answer that question. Is it because you felt not qualified to answer it? Is there somebody that you think we should ask that question to rather than yourself or what is your reason for not wanting to answer?

MR. LEHRER: If I can interject for just a moment, if an interviewee states that they're uncomfortable or unwilling to answer a question, I don't think I anticipated that there would be pressing questions concerning why they've expressed being uncomfortable or unwilling to answer the question.

I would think that that's almost bordering on badgering the man --

MR. ROTH-ROFFY: Right. We certainly have no intention of badgering him.

MR. LEHRER: -- who has already said that he doesn't want to answer the question or is unwilling to answer the question.

MR. ROTH-ROFFY: I'm going to give him another chance, if you would, sir.

BY MR. ROTH-ROFFY:

Q Can you add anything to your previous response?

A Yes, I can.

Q Please do.

A I can tell you this much, that we have to make as much steam as needed to reach the destination and if the consumption go down and if the situation allows it, we take out one boiler. And sometimes it's even needed to take out one boiler, you have to take

out one boiler because you don't have consumption enough to keep the pressure down.

Q So a motivation for taking out one boiler, would that include fuel savings?

A It will include fuel savings, yes.

Q When you cool a boiler all the way down after you've shut it down, obviously if you're going to light off the same boiler again, you would then start from a cold boiler and return it to normal steaming pressure. Is there any consideration given to just keeping pressure up on the boiler and keeping it warm?

Would your rationale for not wanting to do that also include fuel savings concerns?

A That wouldn't be a fuel saving.

Q Why would you not want to keep a boiler warm after it's been shut off?

A Because you need to drain and fire almost as much as if it is on line.

Q So in a way it is a fuel savings issue, because if you have to fire it, obviously you wouldn't want to do that and waste that fuel; is that correct? Otherwise, if there was no fuel issue, why wouldn't you continuously fire it?

A You will lose fuel and you will lose condensate as well on that.

Q So again, essentially it's an economic --
A It wouldn't do any good to keep the pressure up on a boiler for a long time without having it on line.
Q Would it not reduce the stresses that the boiler is subjected to if you were keeping it warm, in your opinion?
A Yeah.
MR. LAMBERT: Just one question.

FURTHER EXAMINATION

BY MR. LAMBERT:

Q After shut down, you don't stay a very long time in shore, the boiler is light on how many times after the shut down? Two or three days or something, generally?
A Until you need it again. Depends.
Q Can you pressure or what temperature is still at the boiler when you light on again, generally? Average.
A That's impossible to answer, because you light it up again from -- sometimes you shut it down when you arrive to the island or Miami and you light it up again on the departure or sometimes it can take days, so it's -- it can be all kind of temperature, from warm to complete cold. It depends on the

situation.

Q When the boiler is completely cold, do you hear (inaudible) noise when you light the burner?

A No.

Q No?

A Not at all.

Q Not at all?

A No.

MR. OELSCHLEGEL: No other questions.

MR. OLSEN: Ken Olsen.

FURTHER EXAMINATION

BY MR. OLSEN:

Q What is the minimum number of burners that a boiler can use to operate?

A On a minimum load it can operate on one burner. On a minimum load.

Q Would one burner in each boiler on a minimum load be too much steam or not enough steam with the three boilers running?

A On a port day?

Q Yes.

A Is not the number of burners that has anything to do with it, it's the oil flow and the less burner you have, the higher flow will be, so if you have one metric ton per hour and you shut down four of

the burners, it will continue with one metric ton. It doesn't help to shut down the burners.

Q I guess what I'm trying to get at is is it cheaper to cut out a boiler -- if you have three running, is it cheaper to cut out one than to have one burner running in each or two burners, whatever would be required to handle the load?

A It's cheaper, yes.

Q And is that because of water leaks and stack gas losses?

A Yeah.

MR. OLSEN: That's it.

FURTHER EXAMINATION

BY MR. PAILLACAR:

Q Regarding the incentives that might have been offered to members of the crew, not necessarily engineer officers or engineers, are you aware that there was any incentive offered for either passing a class survey or a Coast Guard inspection?

A No.

MR. PAILLACAR: No more questions.

MR. HISLOP: Kevin Hislop.

FURTHER EXAMINATION

BY MR. HISLOP:

Q Do you recollect the average daily feed water

consumption?

A I don't recall at the moment. I don't recall.

MR. HISLOP: Okay. Thank you.

FURTHER EXAMINATION

BY MR. RILEY:

Q To the best of your knowledge, Chief, is it your understanding and belief that the boilers are being operated in accordance with the instructions that you've been provide with by the manufacturer?

A Yeah.

Q Are you aware that there are some generating tubes in the boilers which have been known to be a problem for an extended period of time and may even plugged off in the generating magnets?

A Yes.

Q So you are aware that there has been for an extended period a problem with positive circulation, which is why you have to be very cautious in the way you operate the boilers?

A Not the way that you pronounce it, no.

Q Let me restate it. There's been references to reducing numbers of burners and the possibility of keeping a boiler warm with intermittent operation of the burner.

If you have an intermittent operation and the boilers coupled up, what affect is that going to have on your circulation and would it be good or would it be bad?

A I don't see a problem with it.

Q The decision to keep either three or two boilers on line, is that affected at all by the possibility of having problems with the emission of smoke and problems with the authorities with air pollution?

A No.

MR. RILEY: Thank you.

MR. ROTH-ROFFY: Okay. Ken Olsen?

MR. OLSEN: I'm sorry.

FURTHER EXAMINATION

BY MR. OLSEN:

Q You just indicated to Mr. Riley that the boilers were operated in accordance with the procedures that were available on board, along that line, that was the question.

Would you possibly or could you tell us where we can find in writing those procedures that detail keeping the fans on, venting down the pressure of the boiler and so on?

A There is written procedure for lighting up

and shutting down boilers in what we call the Norway Book, which is the big blue book with a picture of the ship outside.

Q For the record, might it be this one?

A Exactly.

Q Okay.

A And there is also written procedures hanging in the boiler room and to be found a number of places on the ship, which is not a copy from that book.

MR. OLSEN: Thank you.

MR. OELSCHLEGEL: Just one last question. Chris Oelschlegel.

FURTHER EXAMINATION

BY MR. OELSCHLEGEL:

Q Chief, the fact that the -- well, it's not necessarily a fact. It's our understanding that you didn't have periscopes on your boilers. Is that true?

A That's true.

Q The fact that you didn't have periscopes, did that concern you, as far as the operation of the boilers? Would you rather have had periscopes or does that not really concern you too much?

A It doesn't concern me too much.

MR. OELSCHLEGEL: That's all I have.

MR. RILEY: No questions.

MR. ROTH-ROFFY: Okay. It looks like we are finally complete with this interview, sir. We appreciate your patience and your assistance. Is there anything that you'd like to add, anything that we haven't asked you that you might want to bring to our attention regarding this accident?

THE WITNESS: No, there is not. I just hope that they find the reason why such thing can happen.

MR. ROTH-ROFFY: Okay, sir. Again, thank you very much and that will conclude our interview. The time is now about 15 minutes after 4:00. Thank you.

(Whereupon, at 4:15 p.m. the interview was concluded.)