DEPARTMENT OF TRANSPORTATION
NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF MARINE SAFETY

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In the Matter of:

MAJOR MARINE ACCIDENT,
DCA 03 MM 032
_____

May 28, 2003

INTERVIEW OF:

STEINAR SJOHAUG

The above entitled matter came on for hearing, pursuant to notice.

PRESENT:

TOM ROTH-ROFFY, NTSB
BRIAN CURTIS, NTSB
CARLOS PAILLACAR, USCG
GREG CALLAGHAN, USCG
RICHARD LEHRER, Attorney
DAN FARKAS, Attorney
STEVE CMAR, NCL
JOHN BUTCHKO, Miami Dade Homicide
NANCY MCATEE, NTSB
CAPTAIN HUUS, Bahama Maritime Authority

P R O C E E D I N G S

MR. ROTH-ROFFY: Good morning.

It is May 26, 2003 and the time is about 09:22.

My name is Tom Roth-Roffy, with the National Transportation Safety Board. And we are here to interview the Chief Engineer of the Norway, Mr. Steinar --

MR. SJOHAUG: Sjohaug.

MR. ROTH-ROFFY: Sjohaug.

Sir, for your information the National Transportation Safety Board is conducting an investigation that occurred on the Norway yesterday, May 25, a fire explosion. We are joined in the investigation with interested parties. And I would like at this time to go around the room, for each person in the room to identify themselves and their affiliation, please.

Starting with Mr. Curtis.

MR. CURTIS: Brian Curtis, NTSB, Engineering Accident Investigations.

MR. PAILLACAR: Carlos Paillacar, U.S. Coast Guard, Marine Safety Office, Miami, Investigating Officer.

LIEUTENANT CALLAGHAN: Lieutenant J.G. Greg Callaghan, U.S. Coast Guard, Marine Safety Office, Miami, Marine Inspector.

MR. LEHRER: Richard Lehrer, Attorney for Norwegian Cruise Line.

MR. FARKAS: Dan Farkas, Attorney for Norwegian Cruise Lines. And just for the record, we are here pursuant to Title 49 Part 831, which allows us to be, and have cleared our presence with Mr. Ford.

MR. ROTH-ROFFY: Okay. You are acting as a --

MR. FARKAS: As a representative of --

MR. ROTH-ROFFY: Representative of the cruise line. You will not be participating in the interview.

MR. FARKAS: No, we will not.

MR. ROTH-ROFFY: Okay.

MR. SJOHAUG: Steiner Sjohaug, Chief of the S.S. Norway.

MR. CMAR: Stephen Cmar, Norwegian Cruise Line.

MR. BUTCHKO: John Butchko, Miami/Dade Police Department, Homicide Bureau.

MS. MCATEE: Nancy McAtee, NTSB, Fire Explosion Specialist.

CAPTAIN HUUS: Captain Huus, Bahama Maritime Authority.

MR. ROTH-ROFFY: Okay. Thank you. That is everybody in the room.

Chief, the National Transportation Safety

Board is conducting a safety investigation. It is not a legal investigation. We are not interested in determining fault, or attributing blame for the accident to any person or party. Our interest is strictly safety. We are interested in determining the cause of the accident and then subsequently make recommendations aimed at preventing a similar accident in the future.

Again, you have the right, as a witness, to be assisted by a person and you have an attorney in the room just to help you with that. If at any time you need to stop the interview to take a break, or to consult with your representative, just let me know and we can stop. So, we will go ahead and proceed then.

EXAMINATION OF CHIEF SJOHAUG:

BY MR. ROTH-ROFFY:

Q Chief, please describe to us the events of that morning, from the time you woke up until, until after the accident at some point, after the emergency was contained.

A The 24th of May, the evening before, arrived into Miami, went to bed 10 o'clock and then we were called for stand-by 2:45. I was down there around five to three, was the time that the pilot arrived, the ship shell door was open, starboard shell door was open. And everything went normal. They slowed down before a pilot arrived, already was carried out. Probably 17, 16, 17 RPM, per minutes on the starboard and port -- That is the normal speed when we are arriving at seaport.

Pilot onboard and we proceed through the channel, into Port of Miami, everything normal. Three boilers are lined, Port 21, 22, and -- 22, 21, and no, wait a minute, 22, 23, and 24. Boiler 21 is, we are doing maintenance, factory as scheduled after 3,000 hours.

We also had on Boiler 21, we had a leak in the, in the resirs(ph) and that was, that was blanked off, as things happen from time to time.

After we had turned around in the Basin of Miami, everything normal, pressure running -- and along side -- was very early. This was five, 5:20, 5:25. We had to turning gear in on the boat to arrive at 5:31 or 5:32 or something like that. And then the motors are running for the line, because we had wait until one of the megasheet for RCCL, are passing by, because of the rates, you know, they had to ship in to the, into the piers, and this was starting to, to move.

I left the control room and during the morning, everything fine, not excess smoke and nothing. And I left the control room about 10 to six, six o'clock.

And I went up to the office, I think I was checking on some incoming e-mail. Printed up a couple of them, that had come in during the night and then I went to my cabin. I was going to write a card to send, or a letter to send with Supply Officer Hanson, who is going home, he was meant to going home yesterday, signing off, going on vacation. That was of course not carried out. So, I was in the toilet when I heard the big bang, and to my knowledge, it was found out about, that was the explosion. There was no one in the bunkers part by the time and there was no one, nothing and -- actually it was two, first it was a slow one and then was a big one. It might be, it has been two, it is very hard, but there was two, two heavy vibration. One a little slowly and then the bigger one.

The telephone call from the control room said that we are going to have a blackout. But, I knew it because the ventilation stopped before they called me up, so I was on the down later in the control room. I, I was looking for my flashlight. But, I took the telephone, and the engineer said we are going to have a blackout. He didn't say anything about any, because that he was, he was troubling, in shock. Because you feel it. Very good when you are sitting there, and you are having contact below, two decks below. And the assistant chief engineer, and also the engineer on duty was suppose to, was going to sign off the same day. He was on his way to his cabin to, to find his I-95, an invitation to through Immigration. So, that happened that you, the watch -- but, they are, if you are signing off the same day, you have to go, be up there say quarter to seven or 6:30, so that meaning in other words, that one by one has to go up to Immigration and then after goes down to the duty, again, one by one. So, that is how we -- Immigration did not want to wait until after eight o'clock. -- all department accepted it.

And he has, and he has been -- somebody was over and everything was smooth. The boiler was running on the low load with one burner out in each three boiler, 22, 23 and 24, fill out one burner out. He was around to say -- and take care, because go on vacation and be back in late summer. So, he passed by, through the boiler room, approximately five minutes and three minutes before this happened, because he was just coming up on the deck, on the -- deck, portside to get some fresh air, and then the things happen.

And then, and a couple of minutes after he met also the unit chief and they went down and we had another, I took the stairs down, and they also took the stairs down, but they went in a different stairwell, so I didn't meet them, because they were running down in,

down in the engineer room. So, when I came to the control room, they were already down in the -- to look for casualties, which they found one, third engineer. He was shocked and burned. And they managed to get him up in the control room and we called a, we called the ambulance and special team. Even before that happened, there was a very quick reaction up on the bridge, because it was reported when you have this, reported fire, and there wasn't any fire. There was no fire. And there reason why there was no fire, is when you let go -- of steam in connection with this motion, the steam is the same as a sprinkler or a -- so it extinguishes everything. So, that was also, there was not any fire. The steam just took care of it.

But, the fire team was called out, with full equipment. It takes awhile, people are sleeping, so, but they reacted very quick. I guess within a quarter of an hour they were there, the first people were there. That is actually to, to, don't have any check to tell us exactly what time they were there, but they were very quick. And so was the special team. And recorded all the minutes from minutes, we have, make a page of it, as good as we can and it is -- for the bridge. We have combined hours, times when have, put that information on what happened together with the bridge. So, it might be we are two minutes less than they are and they are two minutes ahead of us, or whatever.

Any, any reason, any reason for what has happened, I can't, I don't want to speculate it, either. And that we have to find out when we have, got the burner out, and check inside. If that has been a gas explosion or it has been a steam pipe, which had triggered the whole thing, because if you have a steam pipe burst out and it can go out and then also throw away the fuel heater, we can also in this steam explosion, what they call it, steam eruption, could also trigger explosion because you have the -- which is throwing away and it could ignite. So, I don't want to, to speculate on anything.

The boiler had been under maintenance. Has been running for, since the, through the 15 of May, so it was actually 10 days in service. And they get a good job. We have what is inside inspection, class had been carried out. We had also the, the -- and it was nothing abnormal. It was washed down after 3,000 running hours. So, there was nothing -- before we started again, we had four days lighting, very slow lighting because we did some -- works, which was in the boiler rooms. That definitely can be checked when we have time permit us to go inside.

And the boiler was tested before we, we put

it into service, the boiler was tested with 80 bars, 70 bars, 80 bars pressure on the -- to be sure there is no leak.

That was in brief what I have to tell you before you are coming with the questions.

Q Okay. Thank you, Chief.

This is Tom Roth-Roffy.

Could you describe in a little more detail what you did after the explosion. You said you were in your stateroom, you received a phone call. First, let me ask, who was it that called you?

A Second engineer on duty, of course.

Q And what is his name?

A Hoyland, Hoyland.

Q Okay. And he told you that they were going to have a blackout, correct?

A Yes.

Q And --

A But, he didn't mention any explosion, but, I felt it, so he was probably in shock.

Q Okay. And then what did you do after that? If you could in detail describe what you did, you went down to the engine room, what did you see when you went down there and who did you talk to and what they might have told you?

A There was not so many to talk to, because when I come down on the -- starboard, the sprinkler was already released, so first we tried to get ahold, get ahold of the engineer, to shut off the, the shock plates because all the sprinklers on the mid ship, on the B deck and also the C deck has been released through the shock plates.

Q Okay.

A It was a rain forest when you moved in and then you could see the impact of the explosion, when the doors, the upper part of the boiler room into the B deck was open, and when you come to the control room, it is, and by the time also we had the door jarred down to the turbine, which also was -- combined with steam and smoke. And by the time the staff chief and the, and the -- they were on the way down to the turbine --

See, there was no one who could report anything from there, from the boiler room, so you have to go down and see. There was one was in shock, probably now by this time, dead, and the only two ones, they are gone. And the -- man who was, who was in, what they call the engine, the grease cellar, was in the forward turbine engine room, or boiler room, and he also heard a bang, but he was, he was afraid to go aft. Very early we called the bridge to close the water side door, number four, very early, so they did it from the bridge, and that is what separated the forward,

forward ship to aft ship. As you know we have eight water tight doors in the engine compartment. So, the doors leading into the boiler room, there was, this is number five and leading out from the boiler room in that direction aft is number six, but, we didn't close them, because if we closed that one, which is between the forward and aft was closed.

Q The engineer that called you in your stateroom, was the second engineer?

A Second engineer on duty.

Q And where was he located?

A Sitting in the control room on the B deck.

Q And the third engineer, where was he located at the time of the explosion?

A He was, according to -- when he has said goodbye to him, he was then making ready to pump out ballast so, he was then in the boiler room to make ready the wells, to line up for pumping ballast out, as we do before we take -- The fireman, the stoker on duty, he was, did some work on boiler 22, portside, so there was no one on the starboard in the area. So, no one had been touching anything there.

Q Okay. Chief, could you describe the steps that you would go through after arriving in port and get finished engines, what, what steps are taken by your engineers and crew? And, you know, securing steam, and cutting out boilers and --

A We didn't cut out boilers, because it happened before we could run on two boilers, but because of the, then we had to take out one boiler when we arrived into the Island and we had to light up a boiler when we departure Miami and that is too much stress for the boiler. And that is, we have found out that you are not gaining anything. And so we keep in the summer time, we keep the three boiler running. And even in some cases, there is nothing left to go from St. Thomas to the private island, with three boiler, only when we are leaving on schedule. If we are a half hour late from St. Thomas, we can't even make it, and if we are three quarter of an hour, half hour late to the island. So, we are running over at this time, we have the three boilers and, and when we are arriving to Miami, when they are finished with engine, the main steam to the turbine are closed, I mean, were closed and then we put in the turning gear, which are turning. Then we have to wait for, that we are finished with the, we are finished with the --, the chief electrician, or the first electrician, the unit chief, assistant chief, engineer and me, we are leaving the control room. And always when we are in Miami, we keep boiler, there is always one burner out. So, when you have finished with engine, one burner out in each

boiler. And this was one burner out in the three boilers, 22, 23, and 24.

And they are, we can also, we can also take them out, out from the control room. We never do it. They do it on their own. And that is the, they cut out the fuel into the burners and beside that they have a manual that they close. There is a double shut off, double shut off valve for that, so there is no, should be, and that is the reason why we, in case you have a manual -- to shut off.

Q So, at the time of the accident or the explosion, four of the five burners were lit off in all three burners, boilers?

A It was, there are five burners in each, in each, in each burner on the boiler. Each boiler has five burners. One burner was taken out in the three boilers alike.

Q So, four of five burners were lit off.

A No, one of five.

Q Oh, I am sorry.

A One of five.

Q One of five.

A We are shutting off one, so there are four that are still and they running with, with low pressure, maybe 10 bars, because they, because they go from eight bars to 16 bars, so that is what regulating with the pressure. It is closed automatically, watch it and then you --

Q I am sorry, Chief, I am still not clear. At the time of the accident, how many burners were lit off in each boiler?

A One in each boiler.

Q Was lit off?

A One of each boiler.

Q Was running? Okay. I am using the wrong terminology, I guess.

A Four was burning out of five.

Q Okay.

A To make it clear. Four was running out of five.

Q Okay. I understand. It is just the terminology.

A One is shut off. One is shut off.

Q Terminology is all.

When you come into port, do you change the burner tip size?

A They are during the day, but you don't do it as you, in the, during the day, they are cleaning, they are taking off the burners and they are cleaning them and checking the tips and so on.

Q What size tips do you use? Is it one size that is always used or do you have different sizes?

A Before we are using two sizes, but we are using one size now.
Q And what size is that?
A I, I, I would have to see the documentation on it. I, I, there is so many years since I was in charge of this.
Q Okay. But, it is --
A I will let you know, I will let you know the size of it.
Q Okay. But, there is only one size used for in port and at sea.
A Yes. We used to change it before, but they said when we can, we can vary the pressure from eight to 16, and then cut out boilers, and then also.
Q Okay. So, normally under way at sea you have all five burners running.
A Yeah, yeah.
Q What kind of amortization system do you have, is it steam or air?
A It is steam.
Q And how many bars, pressure is that?
A It is 12 bars.
Q And what is the requirements for cleaning of the burners? Is it once a day that they clean all burners?
A It is once every, during 24 hours. And normally you are using it in the night time, between 12 and four o'clock, because you are also doing the steam cleaning of the boilers.
Q Of the sip blowers.
A Sip blowers, yes.
Q So that is normally done on the 12 to 4 watch?
A Twelve to four watch. They have, when we are leaving port in St. Martin, or St. Thomas, we have been in, with low, low on the boiler, and they are also doing the, they take out the burners and clean it during the afternoon.
Q In port, what is your normal fuel oil pressure on the boilers?
A It is depending, if we have two boilers and three boilers --
Q Okay. Three boilers?
A If you have three boilers, nine bars. And it also depends on how many turbine raters you are, you are, you are using. Right now we are using maybe five turbine rater, four and five, because we have one, these are number 17, is out of work because of the trouble with the parts for the generator.
Q Okay. If you have two boilers, what would your fuel pressure be, approximately?
A On island speed, 10, 12.

Q Bars.
A Yes.
Q Okay. Chief, if you could, think back to the last couple of months, what work has been done on this boiler in terms of repairs or overhaul Could you, as best you can, describe.
A Yeah, there has been, since I came aboard on the 23 of March, it has been carried out, bridge down, because the boiler, when you are close to 3,000 running hours, then you have to take a cleaning, wash down. Take the sub pumps, clean it, first you take the dry suit and wash it, and then you take the, the wet suit out and then you are preparing the -- in the furnace and pass up the inspection, etc. And that is the, that is done after 3,000 running hours. Maybe sometimes, you are doing it three thousand and two, and maybe two thousand and five, it depends on the situation. And see, also, we have to feed it in with the, with the schedule, because we are using only one week to do it. But, this time there was some, more, more we had to repair in the burner, so, so, it was actually it was out of service, the boiler, for two weeks, because that is the only stretch we need for boiler in case we are too late, that is from St. Thomas to the island. And instead of to force the work, we say to the Captain, we wait until next week.
Q What other work has been done on that boiler in the past, say six months? Have you had any --
A Nothing else, nothing else, nothing else, nothing else. Nothing else. Just the work, and there has been no leak and no, no, no plugging of tubes. You can have tubes that you are leaking, it was checked, have excessive leaking, you feel on the water you are using -- if there are slow leaks, you also can detect it on the, on the -- you are adding to the boiler water. So, there is --
Q How about the automation, the combustion control system, has there been any repairs done on that in the past six months?
A No, no.
Q What about classification --
A Yes, by the way, we have, civil engineer from Germany, who was here in connection with, when they build the ship, when they took over the ship, he has been around for years, from Germany, he is in the private business and we changed some of the recorders and calibrated it, calibration. He was here in, I was on vacation, he was here in the end of, in the end of January, beginning of February. But, he was here for just calibration.
Q Okay. You say he changed some recorders. Which recorders?

A It was, there was -- recorders.
Q And that was for boiler number 23?
A It was temperature, temperature control at boiler -- changed, because the old type, you couldn't use them anymore. They were --
Q Was that done for all boilers or just --
A No, all boilers.
Q Do you remember that person's name or the company?
A I can find it. I think it was Geary, Geary --
Q What about classification, PV, the last inspection, do you recall when that was done?
A Yes, they were onboard here. They were onboard here and everything was checked.
Q When was that, do you recall?
A Yeah, it was the week from, he was aboard in connection with the Coast Guard. He came aboard in Miami, the Coast Guard on the 15 of May, so what could it be then? Four days before, he came on, I would have to check and see what it was, and they were with us the whole week, to the 19th.
Q Do you recall that inspector's name, or that surveyor's name?
A Hoffset.
Q Hoffstead?
A Set.
Q Hoffset.
A Yes.
Q Chief, do you have a particular engineer that is assigned to work on the boilers and whom might that be?
A We have one who is responsible for it and that is Nicolaisen. He is the second engineer, he has been 18 years in the company. He is coordinating this work, together with the First Engineer Anvik, who is the daily, daily, for the day people, for repair and maintenance, who also has been 20 years in the company.
Q And, Chief, could you tell us about your background, sir, your experience, how long you have been in the industry, how long have you been on this ship and how long you have been with, with NCL?
A I joined NCL in September '79, with the Skyward(ph) and was transferred to SS Norway in March '80. There were only two engineers from previous cluster to join the SS Norway in Brainhoffer, in connection with the purchase of the ship. The rest of the engineers were taken from different companies. And then I stay aboard to August '81. And then I was home for chief engineer school. And I come back to the company in February '86. And stay aboard until Spring, to April '90. And that was a little bit over four

years. Then I came back the 21st of April in 2001, overlapped three weeks with, three weeks with -- previous chief engineer, three weeks together with him. And he is now on the --

Q So you have been onboard the Norway since April of 2001?

A Yeah.

Q And what is your work schedule as far as work and vacation, how does that normally work?

A It is 10 weeks on and 10 weeks off. And they started with it in, I think they started in 1990. And I have been working on the ship in all positions, from second engineer to, in all positions, I have been working.

Q The four years, from February '86 to April of '90, were you chief engineer then?

A No, I was first engineer when I left the ship in August '81, and then I came back as a second engineer, because, that has nothing actually to do with this one, but I tried to get job in the North Sea, on the -- that was also my wish, but, you had to be at the right place, at the right time, and you have to have the right connection. At least you have to be at the right place at the right time. So, it dragged it out, and then I had to start working again, and then I came aboard in February '86, as the second engineer. And I was promoted the year after and then was flagged out in March '87, first of March '87, to flag it out for Norwegian to the Bahamas. A lot of crew members left, or they have to leave because that was the time when they switched it over from Norwegian Scandianian or European crew to, to Phillippines, deck and engine, basically.

Q So, from 1990 to 2001, were you employed with another company?

A In this company, on 10 different ships. The last ship before I was working on for three years, that was the Norwegian -- later, after -- went back again as a -- Ships are like wives, they change name according to how many husbands they worn out and finally they go back to their maiden name.

MR. ROTH-ROFFY: Okay. I would like to go ahead and actually, before I do that, are you okay, Chief, do you want to take a break, get some water or go to the restroom?

MR. SJOHAUG: No.

MR. ROTH-ROFFY: Okay. I am going to go ahead and pass it to Brian Curtis.

MR. CURTIS: Okay. Just a couple of questions. Brian Curtis.

BY MR. CURTIS:

Q Chief, during the regulatory work in March,

was boiler 23 hydro pressured tested, the safety valves?
A You don't test the safety valves unless this comes down there on the class schedule.
Q Okay.
A The safety valves are tested and come from the class of schedule.
Q So, the last test of the safety valves on that boiler would have been?
A Then I have to go to the list to check. You mean the safety valves on the super heater and the safety valves on the --
Q Yes.
A -- on the drum safety valves. Yes, then I have to, I don't have it in my, right here. But, it is done according to schedule.
Q Okay. And the frequency of tip cleaning is once per day?
A Once 24 hours.
Q Once 24 hours.
A Hours, but as I told you previously, that when we are in port, when we are in port, I have ordered them to clean the burners because they are timed one by one out and put them in again.
Q Okay.
A So, you don't leave the, leave the port with, with dirt.
Q Right. And the second engineer would have directed that work?
A Yes.
Q The scheduling.
A Yes.
MR. CURTIS: That is all I have right now.
BY MR. PAILLACAR:
Q Chief, Carlos Paillacar, Investigating Officer, from Miami.
You say that the Class was onboard the week before the 15.
A Yes. All week.
Q Right. You said everything was okay, however, I would like to know if there were any conditions of class issued? Did they issue a report and were there any conditions of class?
A The condition of class you can see it here, if there was, but that was, that has nothing to do with the boilers and the boilers management. We have certain things, there is coalition of class because next year in April, the ship is meant to be -- and it was meant to, most likely, updated here in the United States, up in Boston, I don't know. And sometimes, but not here, before the drydock was taking place, you would know or should. And the ship was going to Europe

for any service or anything like that. They do, they do the dry docking here in the United States. The ship has been more time before here, in dry dock and that is, in -- That was -- that was in '93.

Q One more question. Regarding the repair work that was done, has your crew been factory trained in repairing the boiler or have they been certified by Class?

MR. CURTIS: The maintenance --

MR. PAILLACAR: Yes, the maintenance that has been done, you know, the repairs that have been --

MR. CURTIS: The March maintenance.

MR. SJOHAUG: For your information, I can tell you there is no crew members who are doing job onboard a ship who are certified by Bridgestone or a -- company or the yard who is making the boiler. Not done on the ship. Not on the ship, new company representative, represent. We are aware of it. As people who are experienced from before, in addition to a lot of time in there myself, and doing according to what the description of the repair. The only time you have it, that is when you are rebuilding a boiler, when you are in drydock. It has happened now and then and it always happened. Then you have people from a company, who is do the job. That was in old days. If you go back 20 years and 30 years, then you have skilled person. See what has happened the -- in the United States, how many skilled persons on that, those who are working for the Navy. The rest, are just developing nowadays. So you have to take it in what way. So, that is, like I said, unless the ship has been and we have done the factory, the stone in the yard, that is the only time you have it. And it has happened every time when you are doing major change of, of generator tubes. Then your company from shore side, what they have for, for, for making the team certifying, I can't tell you.

MR. ROTH-ROFFY: Okay. I am going to interrupt the tape is about to end. So I am going to shut down this side of the tape.

(Change of tape.)

MR. ROTH-ROFFY: Okay. The time is now about 10:10. I switched the tape to the other side and we are resuming the interview.

BY MR. CALLAGHAN:

Q Chief, I am Greg Callaghan, from Miami. I understand the last rebuilt of that boiler was done in '99.

A Yeah, and then I have to, I have to, I have to check in my paper to be assure how much this work was carried out. But, in '99, the ship was in Brainhoffer(ph).

Q Okay. All right.

A But, how much work was carried out, I cannot right now tell you.
Q Right.
MR. ROTH-ROFFY: Anybody else in the room have any more questions.
Nancy McAtee?
MS. MCATEE: Nancy McAtee, NTSB.
BY MS. MCATEE:
Q Chief, you described two heavy vibrations when you were in your state room.
A That was, maybe someone else did --
Q Did you notice anything just prior to that, an unusual noise, smell, sound, everything was running as normal?
A When you are up on the liberty deck in the fore, in the fore section of the ship, up there, if you are, no noise, nothing at all.
Q Okay. So --
A And even people who were asleep, they slept so, so heavy, that they didn't, they thought it was the boat barge had been along side to, to move us, hitting the helm.
Q I am sorry.
Can you describe the vibrations, I mean, were they similar size --
A No, they was, in my feeling there was one small and then there was, then there was the big one.
Q Almost immediately after, there was --
A Yes, there was, a second or something. But, there was, there was in two parts. There was two parts. So, maybe one thing triggered another one. That is what I felt. What the others felt, I don't know. But, most of the people were asleep.
MR. ROTH-ROFFY: Okay. Nancy, if that is all you have.
MS. MCATEE: Yes.
MR. BUTCHKO: Yes, John Butchko, Miami Dade Homicide. I interviewed you yesterday extensively.
MR. SJOHAUG: Yes.
MR. BUTCHKO: As you recall.
BY MR. BUTCHKO:
Q One question I have here is are there any warning devices in these boilers? Is there anything that would detect, go up, that there is some kind of pressure in there that would cause an explosion?
A No, there is no, there is no, there is no devices. I don't know if you can, if you can buy any, any device. There is a lot of things you can buy, you can even buy, even too costly, so, to my knowledge, there is no, in the standard maritime operation of boilers, there, of course, you can, you can, you can put in for vibration for detecting here and there, but,

if it has happened, it is even too late to take action.
Q So, there would be nothing if the steam was going up too heavy there, there would be a whistle or a bell?
A No, no, no, if the steam is building up to have, then its safety valve close.
Q Okay. Also, are these things monitored constantly through the control room or is there somebody down actually near the --
A Yeah, two guys all the time in the, in the, in the boiler room.
Q That are actually down there by the boilers.
A Yes, they are there.
Q Okay. All the time, at all hours?
A Well, you saw the, there are two guys dead.
Q Yes.
A Three guys, there were three guys here.
Q And what actually are they doing down in that location, when they are by the boilers? What is their --
A Well, there is always one engineer. Always an engineer. On the maneuver and when we, when we, and when we are in port, he is always there.
Q But --
A Together with a stoker on duty.
Q Okay. My question is, though, what are the people doing that are monitoring the boilers downstairs, what is their function, what do they actually do?
A Yes, they are monitoring it to see that the, is in the normal and the water level. We also have remote devices so we can see that it is also, but if there is any, any smell or anything else, you know, that you would have to use your air in your nose to the deck, we cannot do it up in the control room, which is on the deck level.
Q Right. Would those employees notify an engineer, a chief engineer or second engineer if they did detect any problem, if they did notice the gauges showing a rise in something?
A Well, they notify the engineer on duty up in the control room and call the second engineer. There is always two engineers down in there, in the, one in the turbine room and one in the, in the boiler room.
Q Okay. And if that happens, is that documented in any way?
A If they find anything abnormally, we are, we are notified.
Q And it is documented?
A Yes.
Q Okay.
A But, that is very, very, very, very, very

seldom. It is, it is --
Q Another question I have about some records that we have seen, I asked you a little about this yesterday, about, about some indication of fire, a smoke detector that indicates fire, happening in the engine room, different areas of the engine room, there are several notices on the company tape of a fire, just something that says detector fault and others say actually fire. But, you mentioned that there, you are not aware of any fires that occurred.
A Not, there is no fire. They are very sensitive and if you have a little bit of, of escape of, of gas -- is what you call it. It is the same on the motor ship. On the last ship I was on, we had to change to a not so sensitive type because every time you start up the main engines and auxiliary engine, they start, they start making noise. So, they are very, very sensitive.
Q Okay. Now, if they go off, is there someone who will actually go there and look at them --
A You have to go, you have to every one are pinpointed. There are a number of areas and you have to go to each and say, and they call back to the bridge.
Q And is that recorded if there is, if it is a false alarm? Is that recorded, is that indicated in the records that there is nothing there, there is no fire?
A Yeah.
Q It is --
A They are calling us up on the bridge. That is the recording. We, we, when we have alarm in the engine room, not in the public or cabins, then we have our own panels, so we can, we can see what we have, and then we send a person immediately to the area, in addition, of course, the bridge, with the chief fighter or the fire fighter duty, they are also calling down to check and they are coming down checking as well. And then reporting back to the bridge, that there was a false alarm. And then after two, three minutes, because you cannot reset the alarm unless the, the density of whatever it has disappeared. Or it could happen that the detector, itself, have so much, not soot, but there is always fume and dirt in the, in the air and that is, most of the time would triggered these false alarms. Otherwise you have to change them every month. And this unit costs about $800.00 each. So, it is a lot of money. Sometimes you have to it. They are lasting only for four months.
Q So, there is indications that --
A And you cannot clean them either, because that is, the maker, they say you use it, throw it away,

don't repair it, because then we are out of business.
Q So, the record does show that there was some alarm had gone off down there, were you aware of that? Would you be made aware of that, the alarm was a false alarm?
A Yes, and when we, when we, of course we are, of course we are.
Q But, yet you said you don't remember or you told me there was no fire alarms in the last two days, the day or two before the incident, but yet the record shows there was.
A You see, you see that if is a false alarm, they don't call the chief every time there is a false alarm. But, I hear it from the walkie talkie and we are sending the people to check. And then the electrician and they, if they need to change it, if it doesn't go back to normal again, after a few minutes, then we have to change the unit.
Q Okay. But, you are saying you didn't know of any, but yet --
A I don't know of any.
Q -- but, the record shows that there was --
A You can, you can, you can almost, maybe not every day, but, you hear it on the walkie talkie, that they say there is an alarm. And most of the, most of, a lot of time when we are leaving the port, when we are giving full blast to that, to the combustion and you have a small particle of dust and things like that in the, in the boiler room, and it is just starting to, not to vibrate, but you have some shaking, and then this goes up because you have oil pressure in that boiler room and this goes up the smoke stack.
MR. LEHRER: This is Richard Lehrer. Why don't you do me a favor, why don't you show what it is you are referring to, and let him see if he can explain what it is, because maybe it might just be a misunderstanding about what you are saying, what he is answering.
BY MR. BUTCHKO:
Q That is fine. These are some records from, I guess, a tape from the bridge.
A Yes.
Q For example, you have here, the date, the 24, fire, and fire here. You have some other areas that say false alarms.
A False alarm yes. And the false alarm, if you have any, any -- in this detector.
Q Just for the record here, these are items, they are from a tape that monitors the fire alarms throughout the --
A Yes, that is up on the bridge.
Q And there are several entries on this paper

from the 24th, that show a fire indicator in the engine room area.
A Yeah, but they, have you seen the map and location where it was in there?
Q No, I did not. And I am not an expert on this, that is why I am asking about it.
A And also, also by the way, which we haven't mentioned, that when you are doing the, using the -- the steam, which is always a little bit out, almost every time when we use the -- you have alarm because the stuff, it is not 100 percent, so you are escaping some steam from the shaft --
MR. BUTCHKO: Okay. Thank you.
MR. CMAR: This is Stephen Cmar, Norwegian Cruise Line.
BY MR. CMAR:
Q Chief, just going back to May when the boiler was worked on, was the class society on board specifically to survey the boiler when they were onboard?
A They come aboard by the time and then he did this while, when he was there.
Q Okay.
A Yeah. And sometimes you, you do it on purpose that you extend maybe the running hours for 100 hours and 200 hours and 300 hours, so when he is aboard, he can also, he can also have a look over the work we have scheduled out.
Q Okay. But, in this case he surveyed the boiler.
A Yes, he surveyed the boiler.
Q Okay.
(Pause.)
MR. ROTH-ROFFY: Okay. I paused the tape there for about a minute. Go ahead, Steve.
BY MR. CMAR:
Q This is Stephen Cmar.
A I have to repeat myself. You see when the surveyor was onboard, he was checking a lot of things. There was no any survey which come up according to the schedule on the boiler. But, when he is down, he always put his nose inside a furnace to check how the work has proceeded, and how it was carried out, but there was not any schedule, time schedule for survey. So, actually, there was not any need for him to put his nose into it. But, when he is aboard, he did it. Because the surveys was last year in June.
Q As a result of his survey, when he came onboard, did he mention anything about the boiler?
A No.
Q Okay.
A It is only what is going to be carried out

according to here. And if we feel, if we felt that there was something wrong, then we are free to talk to him or say that we, let's have a check of this particular installation, on boiler, whatever it is.

Q Okay. Just two other quick questions.

Did anybody other than ship's crew work on the boiler when it was worked on in May?

A No.

Q Okay. And lastly, this was asked previously, and you have done this a little bit, could you explain for everybody the watch setup upon Norway? Who is on watch, what they are, could you run through that for everybody?

A Yes. For the engine room, which are divided in three stages. As you know, you have the 12/4, the 4/8 and the 8/12. And the same the afternoon, 2 to 14, 14 to 20 and 20 to 24. So, there are four hours on and eight hours off. In addition, they have the area, which they have to take care of, they are responsible for. So, each engineer and each stoker has an area to, that they are responsible for. So, that means, in other words, you are, you are working average 12 hours a day, more or less. You cannot know the last, yeah, two years, they have been very strict with too much overtime. So, we are filling out the working hours. So, no one is actually allowed to work more than, they can work more than 12, but the rest has to be eight hours continuously. You can work 16 hours in case or need, but you have to have at least eight hours rest. That is the international law, which you follow the law. And the ship, at least you are accommodating in this water here. Because you have the union, seamen's union, you have the company, you have the Coast Guard, you have other authorities, so.

Q But, could you, Chief, for a particular four hour watch, could you explain who is on watch where, who is on watch in the boiler rooms, who is on watch in the ECR?

A If you want to have the name of it, I had it yesterday.

Q Not the names, just the positions that are on watch.

A Yeah, the position, there are three, there are three second engineers, or two second engineers and one third engineer. It just depends.

Q And they are on watch where? Could you just, explain where they are?

A One is in the control room.

Q Okay.

A And one is in the turbine room, but you have to, you have to walk back and forth. And you have always one fixed in the boiler room.

That was the engineers. Then you have one or two stokers, most likely only one stoker and he is also fixed to the boiler room, in front of the control panel. Then you have two other greasers, one is taking care of that forward main engine room or boiler room, where we have the diesels, to check there is no, anything unusual going on there. No leak, no any, because the diesel, they also have their watch. And then we have the second greaser and he is doing also the, checking all the compartments in the aft, in the middle of the ship aft, bilges, looking around if there any leak, etc. He is also doing the transferring of water.

Q So, there as many as seven people on watch at one time.

A Yeah.

MR. CMAR: That is all I have. Thank you.

MR. ROTH-ROFFY: Okay. Back to Tom Roth-Roffy.

MR. SJOHAUG: Seven or six, it just depends. We are, actually we are more crew members in the watch going than according to the class or what we have.

MR. ROTH-ROFFY: Okay. Chief, Tom Roth-Roffy again. I would like to go ahead and make one more round. I have got a few more, and some of the other investigators probably have a couple more questions and then we will probably be done with you.

BY MR. ROTH-ROFFY:

Q Getting back to the question about the watch set up. Did it vary from port to sea or was it continuously the same setup?

A It is the same set, normally we are running, we are running one month on the 4/8 and then they will take them to 8/12. So, we have the watch, they are rotating. The watch is rotating. But, they are the same person all together. So, the whole watch crew by moving from 4/8 to 8/12, or 12/4. Unless there is someone going on vacation, then the new one coming from vacation, so we have to add, but we never split them up. We let them follow each other. And they also take with them the responsibility area, what they are in charge of. So, as long as they are onboard, before vacation, they have their own and most of the time, we, we let them also when they are coming back, they are going to continue with the same area of responsibility. Sometimes we have to change. Sometimes we, we --

Q Okay. And you mentioned, Chief, that there is a second engineer dedicated or assigned to the boilers.

A Yeah.

Q He is a day worker or a watch --

A No, he is a watch going, he is watch going. But, he is the main, he is main, his main duty is to see that the maintenance, looking around for the

boiler. That is Finn Nicolaisen. He is the most experienced of the guys. And he get the person he needs, together with the First Engineer Anvik, who is also very experienced in this field.

Q Is there also a stoker, well, obviously the stokers operate the boilers.

A There is one stoker who is also, his responsibility is to work with work, which has to do with the boiler.

Q Okay, and what is his name?

A That was probably the dead guy. The guy who was, who was severely burned.

Q And, Chief, do you have day working engineers that do strictly maintenance, other than the first engineer, you have one first engineer, he works during the day?

A We have two first engineers. We have one first engineer -- and one first engineer -- The first engineer, Mr. Anvik, he is in charge of all the day workers as a repairman. And also to, to conduct the work, which the repairmen are going to carry out different, of different tasks.

Q And the other first engineer?

A He is, he is the coordinator of who is going to be on duty. He is also put on the crew list, and assigns the right person to the right job. He is also helping, helping the first engineer as needed, also helping the assistant chief engineer as needed. He is also in charge of the, of the main turbines when we are doing work on the main turbines to shut off the steam and secure it and drop the --, etc., etc.

Q Could you tell us about the automation system for the boiler? What sort of controls you have? Do you have, for example, flare scanners? Do you have retractable igniter? As you could, as much, tell us about that.

A The vertical controls is from 1980, it is here and that was, that was actually up to date, when the ship come out. Accepted by class and -- This has been maintained over the years because the original burners for SS France, there was, there was taken away, so there was a new burner control installed. So, in old days there was six burners for each boiler, now we have five. Also, the, the capacity and the five burners from original burners, there was pressure device and there was no steamer device. So, that was modified. Also the pressure on the boiler was lowered from 64 to 60 bars. So, we can say they reduced, the outfit of the boiler was reduced, how many percent, I, I don't know, maybe 20 percent at least, on each boiler. You go down with the pressure, that is also you, you are losing also -- a little bit, but not that

much. And the -- of steam into, you get cleaner burner tips. You are probably losing a little bit of efficiency, but that is thing, know everything they are fighting about. If you gain something, you lose something in another way.

Q What about the burner management system, the automation, is that dated from 1980?

A Yeah.

Q Did you --

A With the replacement of necessary parts, etc.

Q Did you have flame scanners?

A Flame scanners, they are working perfect. So, if the flame is trumping down a little, then they, the burner kicks out and shuts off the, the steam. And also shutting off the steam is a little bit, is a delay on it, so the steam goes through, but first you are shutting off the fuel and there is a delay of a few seconds for the steam to shut off. Which also is to clean.

(Pause.)

BY MR. ROTH-ROFFY:

Q Tell us about the alarms that associated with that boiler. You have obviously low water alarms.

A Yeah.

Q You probably have a low, low water to shut down the boilers.

A Shut down.

Q Do you have a high pressure alarm?

A High pressure alarm, we have.

Q High super heater temperature?

A High super heater.

Q Any others you can tell us about that, you know, we will obviously be looking at the tech manual for the boiler, but, just to give us an idea of the level of automation.

A There is the standard, standard automation. You know, you have the, as you said a high level, low level, low level trip shut off. High pressure, high pressure cut out. It has happened, but very rarely. I haven't -- is up to 62 bars and then it is cut off, working. Then you have also the footer sensor for the burners, it is very important. And they are working very good. And then we have control, up in the control room, where you can see if you, if it goes in, if you don't have so much, what we call it, volume of flame, then it is cut off and then you have to take it out and see what it is. And that has to do also with if you have a misfire on, also to do with if the, if the air, combustion air is, so the -- that should be that, in some of the burners is more, because you have from the wind boxes, the same pressure from the wind, goes to all the burners. Locations can happen that one will

get a little bit more air than the other one. This is only when you are lighting up.

In this case, there was ready of four burners, the pressure of 10 bars, to find out where the volume was, and so it was, there was nothing to tell us that things like this should happen.

Q Tell me about the maintenance that you do on the burner assemblies, the registers and the last time it was done? For example, do you do hydro testing of the burner assemblies?

A You don't do hydro testing on the burner assembly. You steam, you pressure it by steam, to clean it, take the -- out. If you want to hydro test, then you have to close, you have to close the, the outlet from the nozzle, with a washer and let the steam go, the 12 bar steam go, and then you can see if there is any, if there is any leak in the, in the, in the pipe body.

Q And how often is that done?

A As I said, that test, you know, I have done this test, but I cannot, if they are doing it now, they say, this is, this is, this is a test you very, rarely, rarely do because you know it before it happens, if there is any, the bodies are ticking. It could happen and you could have a crack in it, but.

And when the surface, where you are, have the nuts, the nozzle goes, again, that happened, because you have a -- well, after awhile you tighten up, you know, and you can, you can smooth it with special flat grinding device. If you get wrong, and you have to change it, the whole body. It has happened. That has happened.

Q What about the fuel oil cut off valves? Do you ever test those for leakage or leaked?

A You know it when the, when you take the burner out, then you can see if there is any leak. You have, you have a dual cylinode valves, two valve in a parallel, and then you have the manual valve. The leak is very important when the burner is not in service and the burner is not in service. And when you disconnect the burner, put it out, then you can see if there a leak. It has happened time to time that probably had something wrong the cylinode pneumatic -- Well, so, it has to be changed and they have been changed. I think some years ago they changed the, the, they did it, I can't recall if it was in 1993, '93, they changed them. They changed all of them.

Q And what --

A Most of the time before they can't get any spare parts, because you also have indicator, if they are shut or they are open, the device on the end. They say we are not making it any more. And of course,

they produce, they want to sell new. Sometimes the quality is better, sometimes the quality is lower, that is the part of the, of the, marketing. So, that was taken action immediately if you see one of these were leaking. Because you have the pressure against two valves, and then the -- is the last one.

Q The burner management system was that functioning as you varied the load during maneuver?

A Yes, yes.

Q Did it automatically cut in and cut out --

A Yes.

Q -- the burners?

A Yes. They don't, they, they, they don't cut out the burner, we cut it out. We cut out the burner before it is cut out.

Q So --

A They cut it out, but, we don't wait until we are 60, 61 bars, 62 bars, we are starting to cut off. Because when they started to cut out down below, and they suggest only second before you have, you shut down the whole boiler, so you want to avoid it. Especially when there are only two boilers in the, number three boilers are not more flexible. So, we are taking action before. From time to time we are testing if this works.

Q Okay. So, it does work, the automation does work it automatically?

A Yes. Yes.

Q Take out the --

A Yeah.

Q -- the burners, but normally --

A Normally, we are taking action before.

Q What about on reduction and load?

A That goes to here, calling pressure on the boiler.

Q Okay.

A And when you see that, when you are, especially when we are coming into port, we have got three boilers and you don't have so much steam consumption, then we have to take out one burner.

Q Okay.

A On these boilers.

Q How about getting underway from port, you start increasing speed?

A Then, then, when the lines are, are loose and we are starting to test from, from the -- and then we are putting in the, the fifth burner.

Q And do you light that off manually or do you start it manually or is it automatically started?

A No, we start it by manual. We start manual. Yeah, manual, that is when you have, we held the pressure button all day for control panel. So it is

semi manual.
Q Okay. Chief, tell me about the alarm, the alarm printer, the alarm history, electronic recording of the alarms. Do you have the, tell me about that on the ship? Do you have a printer for alarms?
A We have a printer for alarm. And that printer went out of work last week. And we have ordered a new one. Because the printer has been in use since '80. And it was printing out, this is for the turbine and the management and the boiler management. We have, recently we have, we are collecting all the printouts on a year, back.
Q And what about electronic data?
A And then from the, and the printer from the, from the diesel generators, this is working, it is printing.
Q Do you have a way to retrieve the data, save data --
A We could have, no, because when we had the blackout, now, the data was already there, but then we had to Seimen's to retrieve it, so we are not touching the, the Seimen's, there is four pages, five page printout.
Q Okay. So hopefully when Seimens come, we can try to recover that.
A We can try to recover that.
Q Alarm data.
A Yes.
Q Okay.
A But, on the, on the recorder up in the control room, there was, there was not any huge load reducing, air control reducing, everything normal. And then, get out, same as if you are walking the street, looks healthy and then you get a stroke, no one in family have known that there was something wrong with my father, he just dropped dead. But, originally there has been something behind it, sometimes you don't, you know yourself that you have, you are sick. Most of the people they don't know themselves they are sick. It is too late. And then the doctor says, you should have been here a half year before. But, you don't know that there was something wrong. Because if you are that smart that you can say that everything can be recalled, can be, go back, you can find out, it has to be something. Always afterwards, they said, hey, what is this, but if you don't know it. That is the, the thing, which is and when it comes to insurance and claim, that is their way to do their living, don't you know that, have you tested anything or anything you can recall that was not normal? That is the way, the way of, of this society. Someone doing that as a benefit, or it was the -- but, if you go back, you can even see,

you can find out if it was something there. The same with the space shuttle, they are doing what they can to figure out did it, what we could do. And finally they said, well, we could not have done anything. Unexpected thing. But, the final answer, you never got it.

Q What type of fuel do you burn in the --

A Heavy fuel, heavy fuel. Three hundred and sixty stoke. And that is the same fuel you are using for a diesel also, if you are on a diesel ship, they are using the same. They don't have any heavier in, in Miami. Heat it, 100, 120, 30 sensors, or 250, 60 -- and if you don't have any heating on this one, it is almost like -- The next step below this was -- Taken all the good juice out and the bunker sea left. And in, in years, not in the late years, because they are very careful about it now, because of other claim, the old company used to put the whole kind of jimmycars into, they want to get rid of, but, they say, well, it goes to the boiler, it goes to, it goes to the diesel, so they can combust it. A little bit, a dash of this, a dash of that, mixing into the fuel.

MR. FARKAS: Chief, excuse me, he just asked you what type of fuel you use, and it might go a little bit quicker if you just answer, just what he asked and I am sure we can be more specific.

MR. SJOHAUG: Yes, I --

MR. FARKAS: I understand you have been doing this for over an hour and half right now, so, just answer specifically what it asks, it will probably go a little quicker.

MR. ROTH-ROFFY: Okay. I think that is about all I have. I am going to pass it to the next interview.

MR. CURTIS: Okay. Brian Curtis.

BY MR. CURTIS:

Q Regarding the automation to the vessel, appreciating we haven't been on the vessel yet, does it have computer based, computer monitored automation as far as the points in the, the high pressure, boiler pressure?

A Not in the way probably as you are thinking, because we are, we are, we are dealing with a technical 23 years back.

Q Okay.

A And this is, this is acceptable by Class, by Coast Guard, and so on.

Q Okay.

A So, there are computers here and there, but you recall everything even, the time the chief goes to the toilet, we don't have it. But, you can have it. They are starting to install all over now, on the ship.

So, it will be more and more, but at this point we don't have it on the SS Norway.
Q And your recording device, that will get, did that black out and lose power or is it retrievable or, you say the records are kept --
A Yes, in the, in the Seimen.
Q The Seimen.
A We have not touched that one, because I said to the, to the technician, don't do anything, because then you will wipe out what is, what is stored in the brain.
Q Okay. At the time of the accident, were the personnel in the engine room just standing watch or was maintenance being done likewise?
A No one was doing maintenance when the, just watch.
Q Just standing watch.
A That is also the reason why we don't want to have any computer in the control, either. Because if you have a computer there, they are to fiddle with something else. That is also one of the dangers, they don't watch what they are suppose to watch. They figure out that they want to write a letter to their lovers or something else. So, there is a danger, it is also danger unless you are going to put in, in an area when you are alone.
Q Okay. Regarding burner control, when you shut down that fifth burner, you shut the one burner, you have a manual valve and then the cylinode is line --
A Dual cylinode valve for shut off and then you have a manual valve.
Q General practice when you shut down that extra burner, do you close the manual valve as well or just rely on the cylinodes?
A You, you shut off the manual valve as well. Unless you are in the maneuver face that you have to have the burner in, maybe in the five minutes after. But, when we are in Miami, we, there is --
Q And regarding general boiler operations, are there checklists in your SMS system that address lighting off the boiler, lighting off the burner?
A Yeah, we have the SMS list, which is what we have and we follow it.
Q Okay.
A And that is in the, that is in the control room we have the lateness update and it has been renewed in the last 10 months. There is an ongoing, you had to, maybe what as, what was okay last year, is not okay now in January. So, they modified it every month, and they are never going to be finished with this modification. But, of course, they have to follow, update the installation of, the new ship is

always something is good and something doesn't match to this ship. But, in general, yes.

MR. CURTIS: Okay. That is it for me.

MR. PAILLACAR: Chief Carlos Paillacar, from Miami.

BY MR. PAILLACAR:

Q This is a question regarding the statement, you said you felt two vibrations, two explosions. In the starboard side of the vessel, where the boiler 23 was?

A No, you find, you -- you cannot say it is the starboard and the port.

Q Okay. Well, the boiler is located at the starboard side.

A Starboard aft.

Q Okay.

A Starboard aft.

Q I would like to know if you have any other pressure vessels located in that area adjacent to the boiler?

A No, no.

Q No pressure vessels.

A No.

Q Okay.

A On the starboard side, there is boiler 21 and 23, there you have also the, a few of the heaters. You can see them down there, you can see the two heaters. They are thrown away, and that could be also, when you release 60 kilos of steam pressure, you know, that is enough, you know, to, to, to, to kick off the --

MS. MCATEE: Two more questions.

MR. ROTH-ROFFY: Nancy McAtee.

MS. MCATEE: Nancy McAtee, NTSB.

BY MS. MCATEE:

Q Chief, were you aware that on the 24, the fire alarm system, you reset about 17:53?

A Seventeen, fifty three.

MR. FARKAS: Do you want to show him that?

MR. SJOHAUG: But, that was the time when we are starting to make ready for departure from, from the island, the 24th.

BY MS. MCATEE:

Q So, probably something.

A Yeah, and that is when we were starting to give more combustion air and you also get the more kind of circulation of air in the, in the boiler room, because it is all boilers, they are in one compartment. There is no separation. They have got the same combustion air. They are feeding to each boiler is individual, according to the load. But, all of those, I try to get as close as possible, so no one gets more load than the other one.

Q So, the reset was because you couldn't get the fire alarm system to reset itself, because --
A Well --
Q -- of the conditions?
A Yeah, we were leaving the island by the time, or we were preparing for to take off the anchor and as I said, they are sensitive here, that they, that it has happened and it will happen.
Q Okay.
A So, that, but that has not been and I know what you are trying to, to tell me, that this had to be a pre condition, that this is the way that the reason why we had it. But, that is how it is, they are very sensitive. And if you get a little bit of oil pressure, and circulation of the air in there, dust and everything, that triggers the whole, the whole system. And every time you have to go down and check it. We all did, we are the first one called, and the fire fighters come down and check it as well. Report to the bridge, nothing special, nothing special. Even in the passengers' area, I heard a couple of times last week that we had to call out.

MR. ROTH-ROFFY: Okay. This tape is about to run out. I am going to go ahead and stop it.

(Change of tape.)

MR. ROTH-ROFFY: Okay. I am sorry, I am restarting tape two with our interview with the Chief Engineer.

Go ahead, Nancy, you were asking.

BY MS. MCATEE:

Q This is the printout from the bridge, correct?
A Yeah.
Q Who monitors this on the bridge?
A The chief fire fighter and the delegation of duty.

MS. MCATEE: That is all I have.

MR. FARKAS: Is that going to be made part of the record? We are just referring it, and I am just curious --

MR. ROTH-ROFFY: I am sorry, could you identify yourself for the tape?

MR. FARKAS: Dan Farkas, from the Norwegian Cruise Lines, and an attorney. I am just wondering if that, we are making reference to documents here, are they going to be made part of this transcript?

MR. ROTH-ROFFY: No, probably what we should do is just identify it for the record, what exactly we are referring to.

So, Nancy, what is it exactly?

MS. MCATEE: This is the fire alarm log printout from the bridge.

MR. ROTH-ROFFY: Okay.
MR. FARKAS: What is the date?
MS. MCATEE: The starting date is 5/24/2003.
MR. FARKAS: Thank you.
MS. MCATEE: And it went through until after --
MR. SJOHAUG: I said --
MR. ROTH-ROFFY: Okay. Go ahead, if he has information, we certainly want to hear it.
MR. SJOHAUG: I said just a remark, be sure that you are identified where the, the detectors are located. Just only read this one, as you see, there is an alarm there, and there.
MS. MCATEE: No problem.
MR. ROTH-ROFFY: Okay. I have just got a couple of more questions, Chief.
BY MR. ROTH-ROFFY:
Q When did you come aboard the vessel and when is it your time leave on this rotation?
A I joined the 23rd of March and I am scheduled to leave the 8th of June, in two week furlough.
Q Okay. Now this is for our human performance investigator. I need you to think back what you were doing the last three days before the accident. We have what we call a 72 hour profile. So, if you could, you know, either starting from three days ago, and working towards the time of the accident, or if you prefer start from the time of the accident and work backwards. But, we would like to know your, what you were doing in terms of when you worked, when you slept, and maybe doing other duties. Do you think you could do that, try to recall back for three days before the accident?
A Yeah, I can take the whole week.
Q Three days will do it. If you could, appreciate that.
A That will be from St. Thomas.
Q Okay.
A Yeah. We had been working on the boiler 21. We had one from the generating pipe leak. We detected it. There was not any, it was very -- but when we shut off the boiler, we could see the water out, so we had to find where it come from and we finally found it, so that has been working with until, until Saturday. Because when you are doing this work here, you have to cool down the boiler and you have to have person to go in the steam room. You have to have a person to go down in the header, and in the lower drum. The boiler has to be emptied, secured and then you have to trace the pipes. Sometimes it is very hard to find, sometimes you can almost spot, see where it is. So, we loaded one pipe.
Q I am sorry, I hate to interrupt, Chief,

actually what I was really more interested in is say starting on the, you were on St. Thomas on the 22nd.
A Yeah.
Q Okay. So start, you know, what time you woke up that morning, and what time you went to bed, and what time you woke up again and --
A St. Thomas, there is, they are calling us first time by five o'clock, 4:30, as always.
Q So, then you went into St. Thomas and did you work that whole day on the 22nd, Thursday?
A Yeah, yeah, the whole day. We are working, you have paperwork to take out, reports and etc., etc.
Q And then --
A And then you are along together with the guys, and try to give support when they are, when they are checking off to find, to find the leak.
Q So rather than the details, I am really looking for is work/rest cycle, you know, when you worked, when you slept. So, on the 22nd you got up five o'clock in the morning, you worked all day. What time did you go sleep, do you remember?
A On the 22nd, 23rd, the 23rd I was not out at all, because I have paperwork to do, to 11 o'clock in the evening.
Q Okay. How about on the 22nd when you are in St. Thomas?
A In St. Thomas, no, I went to bed about 10 o'clock in the evening.
Q Okay.
A That evening. Because when you have early, early up in the morning, you always go early to bed. You have enough hours.
Q And then on the 23rd, what time did you wake up?
A They call eight o'clock in the morning, 7:30 in the morning. You are always in the control at eight o'clock in the morning. And get the, and check if there is anything that has happened during night, and also in the, in the, in the written standing order, they can call chief engineer, staff chief, a chief electrician, and first --
Q All right, so --
A If something happened during the, during the night, which they, they are feeling that they have to report it.
Q All right, so on Friday morning, were you still in St. Thomas?
A On Friday morning we were at sea.
Q Okay. When did you leave St. Thomas?
A We left St. Thomas, quarter to five, 4:30.
Q In the afternoon?
A Yeah.

Q Okay. So, Friday you got up about 7:30, went down --
A Seven thirty.
Q Worked all day. You were at sea during, on Friday.
A Yeah, we have meeting with the Captain at nine o'clock every morning.
Q Okay. And then you quit work about, what time in the afternoon?
A We quit before eight o'clock in the evening.
Q Eight o'clock in the evening. And then did you, did you lay down then or did you watch TV or what did you do?
A Well, if you go to cabin, you will watch TV a little bit to see the latest news.
Q Right.
A That is the standard for every human being.
Q Sure. And then about what time did you lie down to sleep on Friday night?
A I can't recall, 10, 11 o'clock, or whatever.
Q Okay. And then, so you slept through until Saturday morning.
A Yeah. Arrive at the island, Saturday morning, arrive, we reach --
Q About what time was that?
A Yeah, we are starting to slow down at 11 o'clock.
Q Eleven o'clock.
A In the morning.
Q Okay. But what time did you wake up Saturday morning, do you recall?
A That is the same thing, they call me, you have to be in the control room at eight o'clock every morning.
Q Okay.
A So, they call me 7:20, that is my call. That is when they are calling me.
Q And then on Saturday, you were up all day, right?
A Saturday, up all day.
Q And then --
A And I was in bed 10 o'clock on Saturday, 10 o'clock evening.
Q And when did you leave the island?
A Six, six o'clock, 6:30.
Q In the afternoon?
A Yeah.
Q Okay. And then on Sunday morning, you arrived in Miami.
A Yeah, they called me up quarter to three. You have it on the record here before.
Q Right.

A So, I am just on, I went to the control room at the same time as they pick up the pilot, the shell door was open. I think that was about three o'clock or five to three.

MR. ROTH-ROFFY: Okay. Good. That is what I needed from you.

Any other questions from any other interviewer?

Okay. The time -- I am sorry.

CAPTAIN HUUS: One question from BMA.

BY CAPTAIN HUUS:

Q If you worked all day in St. Thomas, from 5:00 a.m. to 10:00 p.m.

A Yes.

Q Did you have a rest in-between?

A You can have a rest from 12 o'clock, from one o'clock, if I don't eat lunch, I can rest from 12 o'clock to one o'clock or 12 o'clock to two o'clock, afternoon.

Q So you rested.

A Yes.

Q From 12 to two.

A Yes.

Q During the day.

A Yeah. We normally usually, unless you have Coast Guard or special life, etc., etc.

CAPTAIN HUUS: That is it.

MR. ROTH-ROFFY: Okay. Again, the time is about seven minutes after 11 o'clock in the morning, and that concludes our interview with Chief Engineer. Thank you very much, sir.

MR. SJOHAUG: You are quite welcome.

(Whereupon, at 11:07 a.m., the interview was concluded.)