UNITED STATES OF AMERICA NATIONAL TRANSPORTATION SAFETY BOARD OFFICE OF MARINE SAFETY

SS NORWAY ENGINEERING GROUP MAJOR MARINE ACCIDENT DCA 03 MM 032 INVESTIGATIVE INTERVIEWS

INVESTIGATIVE INTERVIEW OF:
HANS OLOF LUNING
2ND ENGINEER, SS NORWAY

Thursday, June 5, 2003

<u>In Attendance</u>:

TOM ROTH-ROFFY, NTSB
BRIAN CURTIS, NTSB
MICHAEL LAMBERT, BUREAU OF VERITAS
CHRIS OELSCHLEGEL, USCG
RICHARD LEHRER, ESQ.
KEN OLSEN, USCG
JOHN RILEY, NCL CONSULTANT

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PROCEEDINGS
1
            MR. ROTH-ROFFY: Responsible for
3 investigating accidents, marine accidents, in the
4 United States.
            So, the purpose of our investigation is to
6 determine the cause of the accident, if we can, and
7 then to make recommendations aimed at preventing future
8 similar accidents. Our investigation is strictly a
9 safety investigation, not a legal investigation. We
10 are not interested in assigning legal liability for --
11 for the -- for the accident to any person or company.
            So, what I'd like to do is for everybody in
13 the room to just identify themselves for the record.
            MR. CURTIS: I'm Brian Curtis with the
15 National Transportation Safety Board. I'm a marine
16 engineering accident investigator.
            MR. LAMBERT: Michel Lambert from the Bureau
17
18 Veritas with NTSB for this investigation.
            MR. ROTH-ROFFY: Right. You're a party with
20 -- to the investigation, right.
            MR. OELSCHLEGEL:
                             I'm Chris Oelschlegel with
22 the U.S. Coast Guard, Washington, D.C.
            MR. LEHRER: And my name is Richard Lehrer,
24 and I'm here on behalf of Hans Luning.
            MR. RILEY: John Riley, independent surveyor
26 for NCL.
            MR. OLSEN: Ken Olsen, with the Coast Guard,
28 Washington, D.C.
            MR. ROTH-ROFFY: Okay, sir. What I'd like
30 you to do is -- is recall for us, if you can, what you
31 were doing Sunday morning, from the time you woke up on
32 -- on Sunday and what -- what you saw, what you heard,
33 what people may have told you or what you might have
34 told other people during that morning preceding the
35 accident and then past the accident to a time when the
36 emergency was -- was finished.
            So, if you could, please, when you woke up
38 Sunday morning, describe that, please.
            MR. LUNING: I woke up with the sound of
40 alarm, and I was instructed to go to my fire station
41 and that is what I did. After that, I followed orders
42 and the instruction from on-scene command commander.
43
            After the accident, sort of after everything
44 slowed down, we were assembled for a head count, and
45 then after that, we did as much of our normal duty as
46 possible at that time.
47
            MR. ROTH-ROFFY: Okay. What I'd like to do
48 is get a little more detail from you. Where is your
49 cabin located?
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MR. LUNING: On the Olympic deck, on the port
2 side, right, let's say, three-quarters of the way
3 forward, three-quarters of the length of the ship.
            MR. ROTH-ROFFY: Okay. And you were sleeping
5 when you heard the alarm?
            MR. LUNING:
                        Yes.
7
            MR. ROTH-ROFFY: And what is your normal
8 watch tour? What time?
            MR. LUNING: At that time, I was on the 8 to
10 12 watch.
            MR. ROTH-ROFFY: And what time do you
12 normally wake up in the morning for your 8:00 watch?
            MR. LUNING: 7:15.
            MR. ROTH-ROFFY: Okay.
                                    So, you heard the
14
          Which alarm did you hear? Do you recall?
            MR. LUNING: There was first Code Alpha one,
17 two, and I think even three times. Then came Code
          Then I was already -- already dressing up.
18 Bravo.
            MR. ROTH-ROFFY: Okay. So, when you left the
20 room, Code Bravo had already been announced?
            MR. LUNING:
                        Yes.
            MR. ROTH-ROFFY: And where did you go, and
23 which route did you take?
            MR. LUNING: I went downstairs to Tower 2,
25 followed the B Deck to Stair Tower 3 and up to Atlantic
26 Deck where is my fire station.
            MR. ROTH-ROFFY: Okay. I'm sorry. You went
28 downstairs to Tower 2. You walked down B Deck. Which
29 side of B Deck?
            MR. LUNING: Starboard side.
            MR. ROTH-ROFFY: Starboard side. And you
32 went down to another stair tower?
            MR. LUNING: Yes.
34
            MR. ROTH-ROFFY: Which stair tower was that?
            MR. LUNING: Stair Tower 3.
35
            MR. ROTH-ROFFY: Stair Tower 3. And then,
37 you went up to the Atlantic Deck?
38
            MR. LUNING:
                         Yes.
            MR. ROTH-ROFFY: Okay. And while you were
40 walking along there, did you -- what did you observe?
41 Did you see any crew members injured?
            MR. LUNING: No, I did not see anyone at the
43 time.
            MR. ROTH-ROFFY: Okay. Did you see the
45 sprinkler system, had it been actuated, on B Deck when
46 you were down there?
47
            MR. LUNING:
                        No.
            MR. ROTH-ROFFY: How about on Atlantic Deck?
49 Did you --
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MR. LUNING: No.
            MR. ROTH-ROFFY: Okay. Did you see any other
3 ship's officers, engineers, as you were talking or
4 running -- were you running or walking?
           MR. LUNING:
                        I cannot remember, running or
6 walking. I cannot remember.
            MR. ROTH-ROFFY: Okay.
                                    It's not important.
8 I was just trying to visualize, you know, how you were
9 moving. Did you see any other engineers as you were
10 proceeding along? For example, the chief or the staff
11 chief?
                        No.
12
            MR. LUNING:
            MR. ROTH-ROFFY: You say you went to your --
13
14 to your fire station?
            MR. LUNING: Yes.
            MR. ROTH-ROFFY: And where is that located?
16
17
            MR. LUNING: Atlantic Deck, Stair Tower 2.
18
            MR. ROTH-ROFFY: Okay. Right at this --
19 right there by the stair tower on the Atlantic Deck?
            MR. LUNING: Yes.
20
            MR. ROTH-ROFFY: And what is your duties?
21
22 You're the --
23
            MR. LUNING:
                         Team member.
            MR. ROTH-ROFFY: Team member.
24
            MR. LUNING: Yes.
25
            MR. ROTH-ROFFY: And what are your duties as
27 -- as a team member? Do you have specific assigned
28 duties?
29
            MR. LUNING:
                        I carry the hoses and nozzles.
            MR. ROTH-ROFFY: Okay. Did -- did you carry
31 any hoses or nozzles on that morning?
32
            MR. LUNING: Yes, I did.
33
            MR. ROTH-ROFFY: And where did you -- you
34 took them from the locker? Is there a locker there?
            MR. LUNING: Yes, there is a fire station,
36 including all necessary things for the fire.
            MR. ROTH-ROFFY: Okay. So, it's just a fire
38 station? It's not a -- an equipment locker, right?
            MR. LUNING: It is a locker.
39
40
            MR. ROTH-ROFFY: It is a locker?
            MR. LUNING: Yes.
41
            MR. ROTH-ROFFY: So, you carried a hose and
43 nozzles.
            Who told you to do that? Who's the team
44 leader?
45
            MR. LUNING: At that time, the team leader
46 was a guy named -- by the name Marcus Pack.
            MR. ROTH-ROFFY: Okay.
48
            MR. LUNING: But we train and I know what to
49 do.
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MR. ROTH-ROFFY: Okay. So, where did you
2 carry the hose to?
            MR. LUNING: Assembling Station on the same
4 deck.
            MR. ROTH-ROFFY: All right. And what did you
6 do after you carried the hose there?
            MR. LUNING:
                        Awaiting orders.
            MR. ROTH-ROFFY: Did -- was the hose charged
9 or was it later charged?
10
                        No, it was never used.
            MR. LUNING:
            MR. ROTH-ROFFY: It was never -- never used,
12 but was it ever pressurized either?
13
            MR. LUNING:
                        No.
14
            MR. ROTH-ROFFY: Okay.
                                    Did you put on
15 firefighting gear or did you just go in your regular
16 uniform or coveralls?
17
            MR. LUNING: No. Firefighting dress but no
18 breathing apparatus.
            MR. ROTH-ROFFY: And did you just remain at
20 that -- that mustering assembling station for awhile or
21 how long did you stay there?
            MR. LUNING: I stayed until given orders to
23 search the area in the Caribbean Deck.
            MR. ROTH-ROFFY: And about -- about how long
25 after the -- the first alarm did you -- were you given
26 orders to search that Caribbean Deck?
            MR. LUNING: I have no sense of time during
28 that period.
            MR. ROTH-ROFFY: Sure. That's -- that's
30 understandable. And at which part of the -- did you
31 actually go down and search the Caribbean Deck?
            MR. LUNING: On the port side.
32
33
            MR. ROTH-ROFFY: And what did you do in the
34 search? Did you -- what spaces did you search?
35 what -- and what were you looking for?
            MR. LUNING: Cabins. Looking for people.
36
            MR. ROTH-ROFFY: Okay. Did you find any --
38 any people?
            MR. LUNING:
39
                        No.
            MR. ROTH-ROFFY: And what did you do after
40
41 that then, after you searched those cabins?
            MR. LUNING: We were given orders to search
43 Biscayne Deck port side but changed -- that was changed
44 to Atlantic Deck port side.
45
            MR. ROTH-ROFFY: And then, did you search the
46 -- I'm sorry. If you could just walk us through it
47 rather than me asking you, you know, step-by-step? If
48 you could just give us those details? You were given
49 orders to -- to search B Deck and then it was changed
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1 to A Deck and then, if you could, give us as much
2 detail from then on.
            MR. LUNING: There is not very much detail to
4 give.
            MR. ROTH-ROFFY: Okay.
            MR. LUNING: We searched those areas and we
7 did not come across any people. That's -- and after
8 that, we went down again to the assembling station
9 awaiting orders again. At that time, the abandoned
10 ship signal sounded, and I went to my lifeboat station.
            MR. ROTH-ROFFY: Yeah. Okay. And after
12 that?
13
            MR. LUNING:
                        Now, that is so --
            MR. ROTH-ROFFY: About what time was that?
14
            MR. LUNING:
                        That period of time is so --
16 gone so far, that after that, I went to my cabin.
            MR. ROTH-ROFFY: Okay. I think we've
17
18 probably gone far enough, and I appreciate your being
19 patient with me.
            Does anybody in the group like further
21 clarification? Brian Curtis?
            MR. CURTIS: Brian Curtis.
            Did -- did you feel the -- the shock of the
24 explosion at all or you were asleep at that time?
25
            MR. LUNING: I did not feel it.
26
            MR. CURTIS: And -- and when you woke up, had
27 the vessel blacked out yet or at what point did you see
28 the vessel black out of power?
            MR. LUNING: I cannot say if it had blacked
30 out because my lights were closed in my cabin -- closed
31 in my cabin.
                I was sleeping.
            MR. CURTIS: So, when you awoke, you never
33 attempted to turn the lights on or --
            MR. LUNING:
                        Not at that time. There was
35 lights from the window.
            MR. CURTIS: Okay. That's all I have.
36
            MR. ROTH-ROFFY: Okay. Now we'll talk about
38 -- about your duties as the 8 to 12 watch engineer.
39 Could you describe what equipment is assigned to you
40 for maintenance?
            MR. LUNING: I am in charge of maintenance of
42 the system of reverse osmosis-producing water and the
43 sewage system and some filtering system for water for
44 the -- for the spar, for example, and that's about it.
            MR. ROTH-ROFFY: And how long have you been
46 assigned to the Norway, SS Norway?
            MR. LUNING: I joined SS Norway first time
48 last year in July.
            MR. ROTH-ROFFY: Have you ever been
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1 responsible for the maintenance of the boilers since
2 your assignment to Norway?
            MR. LUNING: No.
            MR. ROTH-ROFFY: Have you ever heard any of
5 the engineers on the Norway talking about any cracking
6 problems on -- on the boiler drums or -- or any parts
7 of the boilers?
            MR. LUNING: No.
            MR. ROTH-ROFFY: Okay. Have you ever heard
10 the term "microcrack" or "microfracture" or anything
11 like that in relation to the boilers on the Norway?
            MR. LUNING:
                        No.
            MR. ROTH-ROFFY: Okay. That's all I have for
13
14 now.
15
            Brian?
            MR. CURTIS: No questions.
16
            MR. LAMBERT: No questions.
17
18
            MR. OELSCHLEGEL: No questions.
19
            MR. RILEY: No questions.
            MR. OLSEN: Ken Olsen.
20
            Have you ever witnessed any work on the
21
22 boiler?
23
            MR. LUNING: No.
            MR. OLSEN: Have you ever walked through the
24
25 boiler room and -- and saw any persons working near the
26 boiler?
27
            MR. LUNING: Yes.
28
            MR. OLSEN: What were they doing at that
29 time?
            MR. LUNING: I don't know.
            MR. OLSEN: That's it.
31
            MR. ROTH-ROFFY: Have you ever, as part of
33 your watch routine, -- you sometimes go through the
34 boiler room, right, to check the equipment in there?
            MR. LUNING: I go through but not to check
36 the equipment.
            MR. ROTH-ROFFY: Okay. Oh, not to check the
38 equipment, even --
39
            MR. LUNING:
                        In the boiler room, no.
            MR. ROTH-ROFFY: During your watch?
40
            MR. LUNING: My equipment is outside --
42 assigned to me --
43
            MR. ROTH-ROFFY: Right.
            MR. LUNING: -- is outside the boiler room.
44
            MR. ROTH-ROFFY: But when you're on watch,
45
46 you're responsible for the operation of the boilers, is
47 that correct?
48
            MR. LUNING: No.
            MR. ROTH-ROFFY: Who? Who would be
49
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1 responsible for the boilers on your watch?
            MR. LUNING: The stoker and the -- since I
3 have been working -- working with Nico, who you just
4 interviewed, --
            MR. ROTH-ROFFY:
                            Right.
            MR. LUNING: -- those other guys.
            MR. ROTH-ROFFY: So, Nico, Nicolaisen,
7
8 normally takes care of the boilers on watch while
9 you're standing watch with him?
10
            MR. LUNING:
                         Yes.
            MR. ROTH-ROFFY:
                             That's all I have. Anybody
12 else before we let him go?
13
            Go ahead, Ken.
14
            MR. OLSEN:
                        The -- so, only -- if -- if
15 you're on watch with the two second engineers and
16 you're working within the engine room, you are the
17 third assistant, right? Third engineer, right?
            MR. LUNING: Second engineer.
18
19
            MR. OLSEN: You were the second engineer?
            MR. LUNING: Yes.
20
            MR. OLSEN: So, sometimes you would work in
22 the control room and sometimes you would work in the
23 engine room?
            MR. LUNING: Yes.
24
            MR. OLSEN: So, did you ever switch -- how
26 did you determine where you were going to work, whether
27 it was going to be in the engine room or in the control
28 room?
            MR. LUNING:
                        We are on a schedule. We change
29
30 every third or second day, depending if we are enough.
31 If we are three engineers trained for the control
32 room, we change every third day. If we are only two
33 trained for the control room, we change every second
34 day.
            MR. OLSEN: When would that schedule vary?
35
            MR. LUNING: I did not understand that
37 question.
38
            MR. OLSEN: Well, with that -- with -- with
39 the control room duties, then the engine room and
40 boiler room duties, did -- was that always consistent?
41 Was it always every third day or --
            MR. LUNING: No. In case of maintenance
43 being done, I suppose, on the boilers, Nicolaisen would
44 be asking me to be in the control room and he would be
45 supervising the maintenance.
            MR. OLSEN: When -- when that maintenance
47 occurred, did Nicolaisen ever tell you what type of
48 work was going to be performed?
            MR. LUNING:
                        No.
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MR. OLSEN: Did you ever have any curiosity
2 as to the type of work going on in the boiler?
            MR. LUNING: Curiosity? How do you mean?
            MR. OLSEN: Interest. Like if you wanted to
5 be the first engineer, you would want to learn a lot
6 about what the second engineer is doing. Did you ever
7 -- did you ever inquire or -- or try to look at the
8 internal components of the boiler just to get an
9 understanding of what they were like?
            MR. LUNING: Never to the internal
10
11 components, never.
            MR. OLSEN: Never.
            MR. LUNING: No.
13
14
            MR. OLSEN: Are you aware -- are you aware of
15 anyone ever welding on any of the boilers? Not having
16 seen it but having heard about it or hear someone talk
17 about it, welding on the boilers?
18
            MR. LUNING: Yes.
19
            MR. OLSEN:
                       What kind of welding was that?
            MR. LUNING: That, I don't know.
20
            MR. OLSEN: Do you know who might have
22 actually done the welding?
            MR. LUNING: No, I cannot say who.
            MR. OLSEN: Have you ever had a boiler
24
25 failure while on watch? A problem with the boiler?
26 Any boiler?
            MR. LUNING: Specific problem? What kind of
28 problem?
            MR. OLSEN: Loss of feed water, loss of lube
30 weld pressure, loss of fire, any kind of problem.
            MR. LUNING: Loss of fire. Otherwise no.
            MR. OLSEN: Loss of fire. Did you then
33 operate some of the controls of the boiler when you had
34 that loss of fire?
            MR. LUNING:
                        No.
            MR. OLSEN: Well, who -- who took control of
37 problems with boilers when you were on watch?
            MR. LUNING: Loss of fire is a problem for
39 the stoker, the stoker assigned to the boilers.
            MR. OLSEN: Okay. You would get alarms? If
41 you were in the control room, you would get the alarms,
42 is that correct?
43
            MR. LUNING: Yes.
            MR. OLSEN: How would you know that the
45 stoker properly handled the casualty?
            MR. LUNING: First, I would see that he
47 acknowledged the alarm. Secondly, I would see that he
48 again had fire on that burner and that's about it.
            MR. OLSEN: If -- if it was a different
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1 casualty where you had to slow down the engine to
2 conserve steam, would you be able to do that?
            MR. LUNING:
                         Yes.
            MR. OLSEN: Have you been on board the vessel
5 when any of the boiler contractors were on board and
6 persons from shore companies, like Sheba?
            MR. LUNING:
                        Yes, yes.
            MR. OLSEN:
                       Are you aware of what they might
9 have been doing while on board?
            MR. LUNING: No. At that time, I was very
11 new on board the ship. I was very new.
            MR. OLSEN: Okay.
            MR. LUNING: I don't.
13
            MR. OLSEN: But you've seen them on board
14
15 since last year?
            MR. LUNING: No. Last year, I saw them, but
17 this year, I have not.
            MR. OLSEN: Yeah. I meant, have you since
19 last year, within the last year some time.
            MR. LUNING:
20
                        Yes.
                       Did -- did you ever hear of any
21
            MR. OLSEN:
22 concerns about the boilers by other crew members? And
23 I don't mean just cracking or fracturing problems but
24 any concerns. Did they -- did they ever talk about
25 problems with the boilers?
            MR. LUNING: I need that question a bit more
27 specific.
            MR. OLSEN: Okay. Tom asked you if you've
29 ever heard about anyone talking about cracks in the
30 boilers, but I'm talking about anyone -- just problems
31 in general with the boiler.
            MR. LUNING: There is always talk about our
33 jobs, but nothing that had concerned me. So, I had not
34 paid very much attention to it.
            MR. OLSEN: Okay. In the past month or so,
36 have you witnessed anybody welding on pipe outside the
37 boiler?
38
            MR. LUNING: No, I have not. You're talking
39 about high-pressure pipes, steam pipes, or --
            MR. OLSEN: Yeah. Any kind of pipe.
            MR. LUNING: No, I have not.
41
            MR. OLSEN:
                       Outside the boiler?
42
            MR. LUNING: No.
43
            MR. OLSEN:
                        Or have you heard any discussion
45 about welding pipe outside the boiler?
            MR. LUNING: No.
46
47
            MR. OLSEN: Have you been on watch when --
48 when the surface blow of any of the boilers was being
49 used to reduce the salinity?
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MR. LUNING: Can you rephrase that question,
2 please?
            MR. OLSEN: Have you been on watch when the
4 boiler was being skimmed to reduce salinity?
            MR. LUNING: Oh, yes.
                       Yes. Okay. Are you aware of any
            MR. OLSEN:
7 problems with the skimming piping?
            MR. LUNING: No, I cannot say.
            MR. OLSEN: In the recent past?
            MR. LUNING:
10
                        No.
            MR. OLSEN: Okay. That's all I have.
11
            MR. ROTH-ROFFY: Okay. Just a few more
12
13 questions. What license do you hold?
            MR. LUNING:
                        To be honest, I cannot remember
15 the full name of it now, but it's from the Swedish
16 Board of Trade, and -- and it's Engineer, Class 3, with
17 an additional letter which I believe is B.
            MR. ROTH-ROFFY: Okay. Is that steam and
19 motor or --
            MR. LUNING: Steam and motor.
20
            MR. ROTH-ROFFY: Do you also hold a Bahamas
22 license?
            MR. LUNING:
                        Yes, I do.
            MR. ROTH-ROFFY: And what is that? The same
24
25 as the other one?
            MR. LUNING:
                         Yes.
            MR. ROTH-ROFFY: Engineer, Class 3?
27
            MR. LUNING: I just received it, and I cannot
28
29 really remember.
            MR. ROTH-ROFFY: Before coming aboard the
31 Norway, could you just give us a quick rundown of -- of
32 your -- your background?
            MR. LUNING: Started working at sea in the
34 galley when I was 16 years of age. After that, I
35 worked in the engine room the rest of my time which is
36 now 30 years.
            MR. ROTH-ROFFY: And where did you get your
38 engineering training?
            MR. LUNING:
                         In Sweden.
39
            MR. ROTH-ROFFY: And about when was that, and
40
41 how long was that for?
            MR. LUNING:
                         That was three years, from 1978
43 to '81.
            MR. ROTH-ROFFY: And before you went aboard
45 the Norway, what kind of ships were you on? Steam
46 ships or motor ships or both?
            MR. LUNING: Mostly motor ships but with
48 steam pumps for cargo, tanker ships.
            MR. ROTH-ROFFY: And when did you first get a
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1 license? What was -- do you remember the year of that?
2 Your first license?
            MR. LUNING:
                        1982.
            MR. ROTH-ROFFY: And how long have you been
5 working with the Norwegian Cruise Lines?
            MR. LUNING: One year.
7
            MR. ROTH-ROFFY: Okay.
                                    So, you've never
8 worked on any of the other Norwegian Cruise Line
9 vessels?
            MR. LUNING:
10
                        No.
            MR. ROTH-ROFFY: Okay. I believe that's all
11
12 I have.
13
            Brian?
            MR. CURTIS:
                         Say the two weeks prior to the
14
15 explosion, were you, during your watch, stationed in
16 the engine control room in that -- in that period?
            MR. LUNING: Oh, yes.
MR. CURTIS: And during that period, were you
17
18
19 aware of a high chloride content in -- in the boiler
20 water?
            MR. LUNING: For how -- how -- how do you
21
22 mean? From the -- from the test samples taken or from
23 the other --
            MR. CURTIS:
                         The test results.
24
25
            MR. LUNING: No. No, I don't. No, I wasn't.
            MR. CURTIS:
                         Or -- or a high level in the
27 condensate, in the condensers?
            MR. LUNING: No, not during normal operation,
29 no.
            MR. CURTIS: So, as the watch stander in the
31 engine control room, nobody ever notified you of this
32 or you didn't see that there was a high --
            MR. LUNING: Not during normal operation.
34 Normal running.
            MR. CURTIS:
                         At sea?
35
            MR. LUNING: At sea.
36
            MR. ROTH-ROFFY: Just to follow up. Tom
37
38 Roth-Roffy. I'm not sure I understand. When did you
39 notice the high chloride? You say not normal -- not
40 during normal --
            MR. LUNING: High chloride. We are talking
42 about levels of the --
            MR. CURTIS: No. Chloride.
43
                                          I'm sorry.
            MR. LUNING: Oh, sorry. No, no, no, no.
45 -- that was again not part of my system. So, there is
46 another engineer who had that system for water tests.
47
            MR. CURTIS: And none of the other engineers
48 ever made you aware that there were high levels of
49 chloride in the condensers?
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MR. LUNING: Occasionally, we had an alarm
2 which went out again, but --
            MR. CURTIS: No further questions.
            MR. LAMBERT: No questions.
5
            MR. OELSCHLEGEL: No questions.
            MR. RILEY: You mentioned -- John Riley. You
7 mentioned that you were responsible for the maintenance
8 of the reverse osmosis plant.
            MR. LUNING:
                         Yes.
10
            MR. RILEY: Have you had any problems with
11 that reverse osmosis plant?
            MR. LUNING: Oh, yes. With the reverse
13 osmosis plant, I like to say it's only strictly used
14 for drinking water.
                       Nothing else?
15
            MR. RILEY:
            MR. LUNING: It goes straight to the service
16
17 tank for drinking water or -- or for water being used
18 in the hotel.
            MR. RILEY: So, that would -- that water that
20 goes through that plant is not used at any time from
21 the main boiler feed system?
            MR. LUNING: Never. I -- no.
22
23
            MR. RILEY: Thank you very much. That's --
24 no more questions.
            MR. OLSEN: Did -- since the casualty, since
26 the day of the accident, did you hear any crew members
27 discuss the casualty?
            MR. LUNING: Yes.
            MR. OLSEN: Could you tell us about those
30 discussions?
            MR. LUNING: I have tried to stay out of any
32 of that because it sort of hurts, what happened. So, I
33 have not paid very much attention, and I have myself
34 not engaged in any conversation engagements, engaged
35 myself in any conversation.
            MR. OLSEN: Have you formulated your own
37 opinion as to what happened?
            MR. LUNING: No.
39
            MR. OLSEN: Okay.
            MR. ROTH-ROFFY: Okay. I think nobody else
40
41 has any questions. The time is about 11:20 and that
42 will conclude our interview of Second Engineer Hans
43 Luning.
            Thank you, sir, for -- very much for coming
45 down. We appreciate you talking with us.
            MR. LUNING: Thank you.
46
47
            (Whereupon, at 11:20 a.m., the Investigative
48 Interview of Hans Olof Luning, Second Engineer, SS
49 Norway, was concluded.)
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