DEPARTMENT OF TRANSPORTATION
NATIONAL TRANSPORTATION SAFETY BOARD

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In the Matter of: *
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MARINE ACCIDENT *
DCA 03-MM-032 *
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November 20, 2003

INTERVIEW OF:

PETER MYER, JIM MUNT, LEIF KRISTOFERSON,
TONY CUVA, JEREMY DEHAAI

PRESENT: TOM ROTH-ROFFY
BILL ROSSEY

P R O C E E D I N G S

MR. ROTH-ROFFY: The time is 10:25 and the date is 20 of November 2003.

My name is Tom Roth-Roffy, I am an investigator with the National Transportation Safety Board in Washington, D.C. And I am here with Bill Rossey of NTSB, also. Good morning, Bill.

MR. ROSSEY: Good morning.

MR. ROTH-ROFFY: We are here investigating the accident that occurred aboard the SS Norway on May 25, 2003. And we are here at the Offices of Drew Marine in Miami. I would like now as everybody is seated at the table to please identify themselves. Starting this way.

MR. MYER: Peter Myer, Service --

MR. ROSSEY: Bill Rossey, NTSB Materials Lab.

MR. MUNT: My name is Jim Munt, I am in Accounts Sales.

MR. KRISTOFERSON: Leif Kristoferson, I am the area manager for the South Shore Region.

MR. CUVA: Tony Cuva, outside counsel for Drew Marine.

MR. DEHAAI: Jeremy Dehaai, I am in Accounts Sales with Drew Marine.

MR. ROTH-ROFFY: Okay. That is everybody in

the room.

Go ahead start with Jeremy. Mr. Dehaai, good morning. I just, just starting in general terms. Could you describe your duties here at Drew Marine? Your job tile and what your duties are.

MR. DEHAAI: Well, right now I am currently an account executive for Drew Marine and doing technical sales. I have been an account executive since 2002. Previous to that I was a technical service engineer for Drew Marine. Came onboard with Drew Marine in September of '98.

MR. ROTH-ROFFY: Okay. Could you describe your education and training background before you came to Drew and then tell us, start with that.

MR. DEHAAI: Okay. I went to the U.S. Merchant Marine Academy, graduated in 1994. I have a Marine Journeyman license. I sailed on that license, using that license for four years from graduation to starting here. And that is my background.

MR. ROTH-ROFFY: What ships were you sailing?

MR. DEHAAI: I was sailing on mostly passenger vessels in the Midwest and the Great Lakes Region, the Casino Motel is what I was sailing on in various capacities.

MR. ROTH-ROFFY: Okay. Well, what I would like

to do is ask the questions and if you do have, state your name so that the transcriptionst can pick it up.

(Pause.)

MR. ROTH-ROFFY: Okay. Since coming with Drew and you say 1998, could you describe any training or other type of indoctrination that you received from the company?

MR. DEHAAI: Their standard training procedures, the technical training program that we have, that I have started initially, you know, when I came onboard, and that is an evolution process. We continually get updates, we get technical, technicalities is what they are called, updates as far as their technical experience. I have also done some, it is not really relevant to the technical service aspect, but, I have completed MBA program since I have been with Drew as well. So, there is a continual process. We occasionally get together as a group of service engineers and account executives and go through training on various aspects of the marine products.

MR. ROTH-ROFFY: So, I am sorry, could you describe that a little bit more? It is actually classroom work that you do periodically over a period of time or is it --

MR. DEHAAI: We have done, again, you know, it

has been a little bit of time since I completed the program, but there is a self study that we have that we go through on our own time. You know, you get programs and you have to read them and answer questions and submit them for, for, to be graded or checked. We have also on a couple of different occasions brought service engineers to a certain location, we have done in Boonton, we have done it Charleston, I think we did one, where we go on as a group and it is classroom type of environment. But, you know, it is not a classroom on a ship. But, we do the same type of thing where there is somebody explaining different things and we learn that, in that manner.

MR. ROTH-ROFFY: Okay. About how many times a year do you do that or how many times have you done it overall?

MR. DEHAAI: Off the top of my head, I would guess maybe once a year. I would have to sit down and look at it. I can't say for sure, but I would say ballpark once a year when we do the get together as a group program.

Now, on a regular basis, monthly or so, we get different technical updates and information that is distributed, you know, via e-mail and stuff that we can maintain our, our knowledge.

MR. ROTH-ROFFY: And that would come of Boonton, that technical information?

MR. DEHAAI: Yes.

MR. ROTH-ROFFY: Is it like a technical bulletin of some kind?

MR. DEHAAI: Yes, yes, exactly.

MR. ROTH-ROFFY: Okay. Could you tell me when you first became associated with the Norway?

MR. DEHAAI: Well, like I said, I started in September of '98 and within the first month I was here, I was onboard the vessel doing technical service, you know, doing testing and analysis. So, right away at my time at Drew, I was onboard the vessel.

MR. ROTH-ROFFY: And then about how long were you associated with the Norway and was it continuous or not?

MR. DEHAAI: It was continuous for the, for the first two years on a regular monthly basis, I think. Now, there was a period that she left to go to Asia, I believe, we didn't see her locally. I am not sure what that period is. But, I continually saw it and then we hired another service engineer and then we took turns seeing the vessel. And I did that up until a year ago, a little more than a year ago. And then I received my, my promotion and I was not onboard on a

regular basis.

MR. ROTH-ROFFY: Okay. Who is that other person that you, that had been hired that you worked with?

MR. DEHAAI: Tim Clayborne.

MR. ROTH-ROFFY: Okay.

MR. DEHAAI: Drew Marine Service Engineer. When he came onboard, he and I split the, you know, we rotated basically, both saw ships and, you know, depending on schedules, who saw it on a particular month, it varied.

MR. ROTH-ROFFY: So you would get onboard the Norway once a month typically or always once a month?

MR. DEHAAI: Typically, I will say typically. Our charter was to go on once a month, you know, things happen, occasionally, you know, you can't get onboard if there is a problem, you know, a vessel, they are busy, we have problems with scheduling. And occasionally, we went on more than once a month if they had a problem, we would go back and do a follow up. So, I would say typically once a month, but it was not a set in stone process.

MR. ROTH-ROFFY: And when you were onboard, what did you do?

MR. DEHAAI: As far as, from the time I

boarded until --

MR. ROTH-ROFFY: Yes.

MR. DEHAAI: Okay. Usually what I would do is go, once you get onboard, I would meet with an engineer, try to meet with the chief engineer or chief junior, if they are not available, meet with whoever is in the engine control room. And again it depended on the work load. Sometime they would call the boiler engineer in to talk to me, sometimes he was busy doing other things, and it just, it varied from, from visit to visit. But, that, you know, you do the initial meeting to discuss, you know, how are things are going and any problems or anything we can help you with type of thing. And then we would typically be, be, you know, right in the control room, they had just outside of that they had the testing station. Sometimes you would have somebody accompanying you, sometimes you would not. But, we would go there and go through the test, various tests for the, for the treatment program. And, you know, once you completed that, it would be a matter of completing a report of what your test results, making recommendations, and then review that list, again, depending on the situation, whoever you could review that with, the engineer onboard. But, we always, you know, tried to meet with somebody

initially, and maybe somebody afterwards to review what you discovered.

MR. ROTH-ROFFY: Okay. And typically would you meet with the second or with the chief or did it vary?

MR. DEHAAI: It varied. I would say typically, I mean, if you had to pick a typical, you know, it was, there was really probably not a typical situation, but most of the time it would be with the second engineer, the guy who is in charge of the boilers. He would, you know, again, depending on his work load, if he was available, he would like to talk with us to discuss different things and explain situations and that. So, I would say a majority of the time we were with the guy in charge of the boilers.

MR. ROTH-ROFFY: And do you remember any of those names of people that you worked with?

MR. DEHAAI: Not off the top of my head, I don't.

MR. ROTH-ROFFY: There was no one particular second that kind of stood out as being there more often than others over the years that you --

MR. DEHAAI: Not a name that I can recall, no.

MR. ROTH-ROFFY: Was there a lot of rotation, a lot of new people coming into that position?

MR. DEHAAI: I don't really think so, you

know, rotate, but you would see again on a typical, you know, say typically, you would see the same guy three or four months in a row, and then it would rotate. So, it is not like, you know, you would see a different guy every time. But, you know, and sometimes you would see the guy three or four months later, he would be back again, you know, it varied, so. But, I don't, you know, I don't think there was a huge, you know, my personal observation, I don't think there is a huge turnover in who was in charge of t hat position.

MR. ROTH-ROFFY: Okay. But, you just don't, didn't get on a name type basis with them?

MR. DEHAAI: I got to know some of them, but, to tell you, you know, I could visualize, I can see their faces, and I know them and they would recognize me and I would recognize, you know, vice versus, but, their names sometimes are, were a little difficult for me to remember because they were not, you know, names that I was familiar with dealing with in a regular basis. But, yeah, I would definitely recognize people and vice versus, so, you know, we got a pretty good relationship with some of them. It is just a name was a difficult aspect of that.

MR. ROTH-ROFFY: A lot of them were foreign names --

MR. DEHAAI: Exactly, exactly. That is exactly right.

MR. ROTH-ROFFY: Okay. Did you ever conduct training while you were onboard of the second engineer or any of the other engineers?

MR. DEHAAI: Yes.

MR. ROTH-ROFFY: Under what circumstances would you conduct training?

MR. DEHAAI: Well, it would depend, you know, again, I meet with them when we first go onboard to see how things are going. If they say there is a problem with this, we would make recommendations if they are applicable as far as trouble shooting or how to remedy a situation. When we go to the test procedures, if the second engineer was with you, you could explain the test, you know, if you would see something, you are doing something different than the way he does it, you would say something. Or I would say, you know, just to make sure this is how you are doing this test, you know. It was, there wasn't a set training protocol, but we did a lot of training onboard. And then even, you know, once we the get results and we wrote the report, we reviewed it with an engineer, whether it be the second or chief. I consider what we were doing there as training, too. We would get their test

results, we would say this is what we see, these are our recommendations, this is how you do it, and we would, so, I mean, I view that as a training aspect. We explain what they need to do based on the test results. So, there is a continual training process.

MR. ROTH-ROFFY: Okay. Does Drew have any type of a more formal training program for NCL on water treatment, chemistry issues or is it, is it primarily just onboard?

MR. DEHAAI: Primarily onboard. We do a lot of, you know, it is hands on training. I think that is the benefit that we train them in areas that they need the training. It is very specific. We do have water treatment manuals, testing manuals. That lists everything from A to Z on our treatment programs, how to do the test, the dose and everything else. But, the vessels get on, you know, they have, so that is more of a self study for them. So, and that is probably, if you were going to say there is a formal training program that would be it. But, you know, as far as taking them off the ship and sitting them in a classroom and doing lecturing, there was not that, no.

MR. ROTH-ROFFY: Okay. So, probably a lot of the training was kind of a turnover, if there was a new second engineer, he would maybe learn from his

predecessor on how to initially conduct the test, would you say that --

MR. DEHAAI: Exactly, that is, but, more than that is, is the people that are, the engineers are licensed to work on steam ships. And, you know, they have seen it probably on other vessels. They are probably familiar with the, the treatment programs and their understanding of the boilers and dose and all of that stuff. They have experienced that in their careers. And then there is also the material as far as particular situations on the vessel. But, a lot of this stuff they have learned, you know, when, their education, you know, to get their license, they have probably seen a lot of the testing process.

MR. ROTH-ROFFY: Okay. Can you recall specific problems that you encountered during the service visits to the Norway, related to boiler chemistry that you can describe?

MR. DEHAAI: As far as like things, test parameters that were out of limit, is that what you --

MR. ROTH-ROFFY: Yes. Yes, if you see something that is noteworthy, that, you know, what we do here, that you have instances where, you know, things were more abnormal than you thought they should have been.

MR. DEHAAI: Taking me back, I mean, I have looked at the reviews reports a little bit, and I see, you know, some stuff that, you know, maybe there were some, you know, out of specs stuff, but, thinking back, there was nothing that, you know, outstanding as far as, you know, they always had a major problem with this or that or the other thing. That really wasn't the case, you know, they had minor, I think minor situations that occurred on, on a regular basis, I think, you know, there were small problems. But, I don't think there was every any glaring, you know, problems that stand out in my mind, like this occurred, you know, onboard at this particular time. I don't think there was really any major problems.

MR. ROTH-ROFFY: Okay. We have kind of looked through some of the records and see that there was a recurring with chlorides. Do you recall such instances of high chloride in the boilers?

MR. DEHAAI: I do remember. They did. Again, I don't think it was ever a major high chloride issue or, but, you know, they had problems, I think, at times maintaining those, those levels within the, the specifications. But, again, you know, I think that happened a lot, I didn't look at the reports. I think it was a, a regular occurrence, but, I don't think it

was a detrimental aspect where we had climbs that, you know, beyond what we see in other vessels that have similar situations. But, they did, that particular vessel did have a difficult time maintaining the chloride levels on a relatively routine basis.

MR. ROTH-ROFFY: Okay. And from your knowledge of how the system works, what is the effect of high chlorides on the boiler, on the, say the internals of a boiler?

MR. DEHAAI: Well, the specific chemistry of it, I am not, you know, up to speed on that, but, it causes, you know, corrosion, that is my understanding of it. Now how the chemical aspect, how it works, I can't say, but, you know, my understanding is if you continue to have excessive chloride issues, you may have corrosion, formation, depending on other aspects of the chemistry as well, so.

MR. ROTH-ROFFY: But, as far as you know on a periodic excursion, high chlorides is not a serious matter for the boiler.

MR. DEHAAI: You know, as I see it, you know, and that again is just my opinion, and it is should be taken as that. I can't say chemically, you know, but, you know, we see it on other vessels that have a high chloride, have a leak and it doesn't cause detrimental

harm to the boiler systems. I think, so, I would say, you know, an occasional deviation from the specification as far as chloride continuity, personally I wouldn't see that as a detriment.

MR. ROTH-ROFFY: Okay. Did you have occasion to raise your concerns or have reasons to discuss it with your supervisor or with -- about chloride continuity or was it never raised by anybody or --

MR. DEHAAI: I can't say, I don't remember a particular instance of doing that, of bringing up, probably in a routine conversation, what we typically do here in Miami, you know, the account center is here in Miami as well. And we are all here locally and we talk to each other on a regular basis about what, you know, our service on the weekend and different things. So, probably at some point in time, or maybe on a regular basis, the account guy would say, how did it go on the Norway on Sunday, Saturday, depending on what day I was in at that time, and I said, yeah, maybe that high chloride, but it wasn't something that it was an issue where I felt it needs to be addressed in a magnified manner. It was just a routine conversation type of thing, so.

MR. ROTH-ROFFY: Okay. But, you would normally make a note of that on your service report if you saw

that condition?

MR. DEHAAI: Definitely, always. The test results are on the report, I mean, it was always specified, you know, we always wrote, you know, exactly what are test results were and whether it was common, based on the results. So, it was always noted that there was, if we observed an out of spec.

MR. ROTH-ROFFY: And you would also review their logs to see if they had out of spec --

MR. DEHAAI: Yes. Exactly. We would look at the book that they had onboard and let's say if this continued out of spec, or if they had a one day, you know, you might not comment. If there was a one day two weeks ago and then it was back to normal, but, if you see continued high chlorides or certs, a continued whatever, we would comment on it as well.

MR. ROTH-ROFFY: And you say you went onboard, you say you were alternating with another engineer. Would you review the previous month's log before you went onboard to see if there was a problem that was noted the previous month?

MR. DEHAAI: I did. That is what I did when I did the certs, you know, we kept the certs reports in a file and we put the newest one on top, and when I would go onboard, I would pull a file out and I talked to

the, to the second or chief, whoever I was able to get ahold of, and I would open it up and look at it to see, well, last time we were here we had this problem, are you still having that problem or is it remedied or, or, you know, if I was waiting to get onboard through the security process, which can take time, I would open that file up and look, too, just so I knew what to look for as far as continued problems.

MR. ROTH-ROFFY: Okay. The ship from our review of the documents, had four boilers and they operate two to three at a time. It seems like maybe one boiler was, was normally a down period and one boiler would be split off and shutdown cycle, essentially, to meet its requirement of the voyage. Are you familiar with that, the way they are operating the boilers in terms of, you know, two or three boilers in operation, one down?

MR. DEHAAI: Well, the familiarity we have is that in port operations, you know, of course, because that is when we are onboard. When we would go onboard there would be typically two boilers only, like you were saying. You know, and you would know that, like on samples, you would only have pressure on two of sample lines. So, we did, I was familiar with it, of their in port status that they typically had two out of

the four boilers on line, yes.

MR. ROTH-ROFFY: Okay. So you would test the two operating boilers?

MR. DEHAAI: Yes, correct.

MR. ROTH-ROFFY: The other boilers would not be tested.

MR. DEHAAI: No.

MR. ROTH-ROFFY: So, one of the, from your recollection one boiler had been recently shutdown and still hot, or do you remember how the third boiler would be?

MR. DEHAAI: Not really. Again, it depended on, you know, if there was somebody to work with, like I said, occasionally, we had the second when we were doing the test, a lot of times he had a lot of things to do, so we were doing it on our own, you know, he said, there is everything, so, if you were able to get a sample out of the third boiler, you did a test, but if there if was shutdown or wasn't pressurized enough to get a sample, out of the sample line, you didn't the test. So, why that occurred, if it was recently shutdown, that was not typically known to us.

MR. ROTH-ROFFY: And did you review the log to see how often they were shut down and how often -- Kind of the frequency that the boilers were being cycled?

MR. DEHAAI: Not really. That is, that is, I can't say that I was. Usually, we looked at more of, of analyze the test results and trend analysis of the results. I don't really remember spending a lot of time seeing which boiler I was looking at results. It was usually a generalized review saying, you know, boiler test results, and it was a combination of whatever boilers they were testing and put in the logbook. I don't, never really tracked which boilers were, I was looking at.

MR. ROTH-ROFFY: Okay. So you really didn't have a real good appreciation of, I don't know what the right word is, but, a good understanding of how the boilers were off and cycled or however long they were off. You were just mainly looked for the readings, right?

MR. DEHAAI: Yes, typically, yeah. That is correct, you know, our understanding of how often they were cycled on and off wasn't clear, you know, as far as what they were doing. No, I would say it wasn't, because we were dealing with, with in port operations as well, which is, you know, for a ship is abnormal, most ships they are designed to be it sea. So, a lot of vessels that were on, the incorporations are very different what is typical. So, you know, we just dealt

with that very specific time.

MR. ROTH-ROFFY: Okay. As I mentioned, we saw that sometimes they would run three, and sometimes they were running two, so a third boiler would be off and on, you know, they could run it for a couple of days, and then it would be off for a week, maybe run it for a couple of weeks and be off for a couple of weeks. So, it was kind of variable. And we have gone through and kind of mapped some of this, so we have a pretty good idea of that cycling. But, do you havent done anything similar to that? I am sorry asking the same question, or it seems redundant, but I just want to make sure.

MR. DEHAAI: Sure. No, no, I have, no, as far as myself, I have not tracked their cycles of their boiler operation and, and, that is something that we, you know, typically don't do. And may not have access to, their operations, we would just have access to what is happening when we were there. So, no, I have not done that.

MR. ROTH-ROFFY: Okay. Another parameter we have kind of been looking at is the hydrogenous(ph), do you recall any instances with either high or low hydrogenous during the time that you were servicing the ship?

MR. DEHAAI: Nothing in particular. If I

remember, I mean, just thinking back, it has been some time, but, they kept, if I remember right, pretty good hydrogenous levels. Again, that is just an off of the top of the head, but, I don't remember any problems with the hydrogenic, they are pretty good about controlling that.

MR. ROTH-ROFFY: Okay. And the dosing levels of hydrogenous on a daily basis, is it pretty much the same for all steam plants from your recollection?

MR. DEHAAI: As far as different --

MR. ROTH-ROFFY: Yeah, I mean, from -- what that size would need.

MR. DEHAAI: I think we typically say around the liter a day, I think is one of our recommendations is. But, all ships vary depending on, you know, how much oxygen have into the system, duration, how much water consumption, you know, how much makeup water they have to add. So, it varies sometimes greatly from vessel to vessel. But, I think we recommend, I think it is either one or one to two liters a day, again, my familiarity with, with that is, is somewhat dated, but, I think it is one to two liters a day is what we recommend.

MR. ROTH-ROFFY: Okay. And you probably don't recall what they were putting in?

MR. DEHAAI: That I don't, no, I do not recall that.

MR. ROTH-ROFFY: Okay. Do you recall, is it something that you would normally do, is look at their dosage of say hydrogenous and see if there was, it would be normally what expected for a plant like that?

MR. DEHAAI: Yes, we would. And I am trying to remember, if, I think in the logs that they kept in the book, they would write dosage some, I think, again, it has been some time, but I think they regularly wrote what their dosage amounts were. I don't know if they wrote it every time, but I think they wrote what their dosage was. I will look at that.

MR. ROTH-ROFFY: Okay.

MR. DEHAAI: And if there was something that was out of, you know, a typical range, we would definitely know that.

MR. ROTH-ROFFY: Okay. Back to the cycling question. As I mentioned, light the boiler off for a couple of days, be off for a few days, or more. Can you describe what Drew would recommend in terms of how to chemically treat a boiler when it is in an idle status?

MR. DEHAAI: Well, I think what we, the Drew recommendation as far as I understand them is if it is

going to be in idle status for extended period and what that is specifically is open to a little bit of interpretation, that they should do a way up procedure. But, you know, again, those are, that is a judgement issue and I don't think we even specify particularly if it is more than X days, we need to do this. I think we say if it is going to be an extended layout, or an extended out of period, you should do, you know, a lay up procedures, but that is again, that is kind of a judgement issue that the operators, you know, typically make on those things.

MR. ROTH-ROFFY: Okay. And we have noted that, and we would like to kind of nail this down, what Drew Marine expects, you know, how many days, maybe it is a better question for Leif. Shall we ask Leif if he can tell us more about what Drew Marine's recommendations are?

MR. KRISTOFERSON: I think in the, in the, as far as extended lay off period, will typically be like a month, maybe, three, four weeks, and beyond, where the boiler was consistently not being used, would go into the lay off procedure, whatever that lay off, and of course, if it is far beyond that, it would be a dry lay off, but that is not relevant to an operating ship.

MR. ROTH-ROFFY: Okay. Thanks. So, is, does

that kind of square with what you understand?

MR. DEHAAI: Yeah, I mean, if I, if you had asked me my opinion, you know, I would say probably three, I would say a month, three weeks, four weeks, you know, and if somebody, you know, I say to the ship, these are our lay off procedures, if you are going, you know, for an extended length what is an extended length, I would probably say three to four weeks. Again, it is, it is open to interpretation, but that is what I would say is a ball park figure as far as --

MR. ROTH-ROFFY: So, why would you say it is an open interpretation, why is it a judgement call? What factors influence when you would go into a lay off?

MR. DEHAAI: Well, I think there is going to be some factors as far as the system and how tight the boiler is. If you lay it up and it is a tight boiler, you can close all your valves off, there is no in leakage, you are going to have less problems with corrosion than if you have, you know, there was leakage and there is air getting in and all sort of things happening. If it is a real tight and you can lock that boiler up so it is tight, you are not going to have as many problems. So, I think that as far as the condition of the boilers, is a factor.

MR. ROTH-ROFFY: Sure. Anything else you can think of that might influence the, you know, when a ship's crew would say, you know, we need to go on a lay off, you know, it is not long enough to worry about laying up?

MR. DEHAAI: It might, I would say the condition of the boiler. And not only as I said, you know, previously as far as whether you are able to lock the boiler up tight, but, you know, the condition that if there is corrosion present or if there is an issue that, that, that would be, you know, would be much worse by not addressing them. That would be the case. But, other than that, I wouldn't say there was any particular situation.

MR. ROTH-ROFFY: Okay. Can you describe what, what Drew Marine's recommendations are for chemistry on the boilers?

MR. DEHAAI: Yeah, I would have to, I would have to look at the exact procedures to give you details. Again, this is not, it is not a typical process of doing a lay up. But, what we do is, is elevate the oxygen scavenger which is for this, or the hydrogenous level and then it is, I am not sure if the cage is elevated or it just needs to be maintained. But, your typical, you are watching for your Ph level

and your oxygen scavenger level in a lay up procedure. That is what you are looking for. And again, you know, my familiarity with that is limited because it is not a normal process.

MR. ROTH-ROFFY: Okay. As far as you know, did the Norway use this recommended procedure when they shut down their boilers?

MR. DEHAAI: As far as I know, I don't know if they ever did what we consider an extended lay up procedure, a lay up procedure.

MR. ROTH-ROFFY: Which means elevating hydrogenous?

MR. DEHAAI: Yeah, as far as I am aware, no, but, you know, again, I am not sure on that, so.

MR. ROTH-ROFFY: Did you ever have any discussions with the crew or NCL management about lay up procedures for either boilers?

MR. DEHAAI: Not that I recall.

MR. ROTH-ROFFY: Okay.

MR. DEHAAI: As far as specifically asking questions, talking about, again, that is, that is reviewed in part of the manuals that we deliver, you know, it has lay up procedures in there. But, as far as actually talking to somebody about it, in this specific instance, I don't recall that, no.

MR. ROTH-ROFFY: Okay. Did you ever test any idle boilers for the hydrogenous content to see if they elevated hydrogenous levels?

MR. DEHAAI: No.

MR. ROTH-ROFFY: Normally you wouldn't test the idle boiler.

MR. DEHAAI: No.

MR. ROTH-ROFFY: You said that.

MR. DEHAAI: Yes.

MR. ROTH-ROFFY: Okay. And none of the crew members had to ask you about hydrogenous levels in the boilers?

MR. DEHAAI: Not that I remember, no, no particular instance anyway.

MR. ROTH-ROFFY: Okay. We have been going about a half hour. You are okay, want to take a break? Anybody need a break? No. Okay. Want to continue on? At any time you need to do whatever, we can stop the tape and do it.

MR. DEHAAI: Okay.

MR. ROTH-ROFFY: Did you ever have a chance to inspect the internals of the boilers?

MR. DEHAAI: On the Norway, I don't believe I ever did a boiler inspection.

MR. ROTH-ROFFY: Okay. Was it something that

you as a service engineer for the boiler, would be interested in looking in the internals?

MR. DEHAAI: Definitely. And what we, you know, that is, our standard stance on that is, you know, if the boiler is up, we definitely take a look inside and see, to do a boiler inspection. But, again, the boilers being open and is much similar to the boilers being extended lay up, it is not a typical process or procedure. You know, we may say, if the boiler is going to be open, we would like to see it, if the ship says the boilers are open, we will go down and look at it, but it is not something that we regularly have the opportunity to do. We would like to but, it is not a regular occurrence.

MR. ROTH-ROFFY: Okay. And I believe you said you don't recall ever looking inside the boilers on the Norway.

MR. DEHAAI: Yes. I never did. I am sure of that.

MR. ROTH-ROFFY: Okay. So, do you know of any type of corrosion problems the Norway was having, since you were --

MR. DEHAAI: Not, not really, no, no specifics. I never had the opportunity to, to visually see anything and the crew never indicated that they

were having problems, particular problems, no.

MR. ROTH-ROFFY: Okay. And this, probably the question I need to ask some other folks to see if, but we will get to that.

(Pause.)

MR. ROTH-ROFFY: How many ships does Drew service here in Miami area?

MR. DEHAAI: Right now I am not sure what the current number is, because things have changed a lot since September 11, vessel locations. I know maybe four years ago, we were seeing on average probably a ship a day, it averaged out, here, we would see four or five some days, and some days we wouldn't see any, so, I would say an average about a ship a day, 350, 400 I think I have seen in a year.

MR. ROTH-ROFFY: Okay. And that is, you go onboard once a month on the other ships, as well?

MR. DEHAAI: Cruise ships, we go onboard once a month, yeah. The cargo ships, we are, it is not as frequent.

MR. ROTH-ROFFY: Okay. And of those 350 visits, how many were steam vessels?

MR. DEHAAI: It was a relatively small percentage. Cruise ships, if I am not mistake, the Norway may be only the steam vessel. I would say less

than five percent of the total vessels I saw were steam ships.

MR. ROTH-ROFFY: Okay.

MR. DEHAAI: As far as the main propulsion was steam propulsion, less than five percent.

MR. ROTH-ROFFY: And did you ever have occasion to go in any of those boilers on those other steam ships?

MR. DEHAAI: No, again, a boiler inspection is a rare occurrence for us and no, I never had the opportunity to go, that I can recall anyway.

MR. ROTH-ROFFY: Okay. Have you had any training on boiler inspection, what to look for?

MR. DEHAAI: Yes, I have. I have had some hands on training from somebody that was here previously. And I went inside boilers on, you know, auxiliary boilers on diesel ships. We have done some internal inspections and had some experience with that, as far as what we are looking for and what we are trying to do when we are inside of there.

MR. ROTH-ROFFY: What sort of things would you look for in a main propulsion boiler?

MR. DEHAAI: Well, you are going to look for, it is similar really with, you know, you look for pocks, you know, you are going to look for corrosion

cells. You are going to look for like deposit formation. The main thing you are going to look for is the color, when the boiler is open, you look into it if it is going to be a lot of, you know, red rust or picking up and if you see the red rust, you know, you scrape it out and see if that is just flash rusting and magnetized later, you are going to look for, you know, on the bottoms of, you are going to look for deposits and, and getting the things. You are going to look for things that stand out as being out of the ordinary, you know, of what you should see.

MR. ROTH-ROFFY: Okay. So, your training, from your assessment, kind of a turnover training.

MR. DEHAAI: No, my predecessor on this current position, he was actually the accounts guy that was here while I was doing the service before I got the promotion last year, he and I had gone on a couple of different vessels as him showing me how to do it. And I also, one of our other service engineers in a different region, he and I met one time to do a boiler inspection, just to get experience. I mean, to, to, that is the best way to learn how do to a boiler inspection, is to do it. I mean, you can talk it out, but until you see the internals of a boiler and do a boiler inspection, it is, it is, there is no benefit.

So, that is where that was done, you know, a lot of hands on training as far as that goes.

MR. ROTH-ROFFY: Have you ever done an inspection of a main propulsion boiler?

MR. DEHAAI: I am trying to remember. I don't believe that I have, no.

MR. ROTH-ROFFY: Okay. Would you think you would need to get inside of the drums and headers to do a good inspection? Could you do it from the outside?

MR. DEHAAI: For what we would be looking for, the boiler inspections I have done, it, you can get a pretty good idea from the outside. If you look in, you can see if there are deposits, if there is oxygen pitting, if there is scale formation, if there is sediment, and you can get a pretty good feel of the condition of the boiler, just from looking at it. Now, if you see problems, there may be a need to go inside and look in additional areas for other things, but, you know, you get a pretty good feel just from looking through the manholes, you know, and poking your head in and, you know, you don't physically have to be entirely in the boiler, but, you get half your body in there and looking around you can see stuff. But, and you get a pretty feel from doing that. I don't think you really need to physically go all the way into the boiler and

dive into it to get a good feel for the condition.

MR. ROTH-ROFFY: Okay. Well, what I am going to do is think about some more questions. I am going to ask Bill, if you are ready, to go ahead and ask a few questions. Are you still okay?

MR. DEHAAI: Oh, yeah.

MR. ROTH-ROFFY: Go ahead, Bill.

MR. ROSSEY: I guess one question I have --

MR. ROTH-ROFFY: Bill Rossey.

MR. ROSSEY: Yes, Bill Rossey. Thank you.

One question I had is you mentioned that some of these boilers were cycled fairly frequently or cycled. One question that I have is how would that affect the maintenance of the water chemistry levels?

MR. DEHAAI: That is a good question. I mean, again, speaking from my opinion, I don't think it would affected to a great extent because, you know, you are going to have your chemicals in the boiler, you are going to shut down, the chemicals are going to remain in the boiler. And then when you start up, as long as you start your dosage and treatment, at start up, it shouldn't really affect the chemistry of the water in the boiler, I wouldn't think. Although you might have, there could be some issues again, you know, like I say, the lamp procedures, the elevate the hydrogen levels --

you may have to, when you restart the boiler, if you did have, if your hydrogen is used up, you may have to provide a little extra dose in the start up, but, that, nothing out of the ordinary that they wouldn't, you know, that the operators wouldn't be able to test and adjust them relatively easily.

MR. ROSSEY: Okay. Tom asked a lot of these questions, I am going to jump around a little bit. One question I had was just reviewing the documents from '98 on, can you give me a feel as far as what documentation was generated and passed onto Drew from following your inspections? So you went on scene, you took water chemistries, then what happened?

MR. DEHAAI: What did we do with the reports?

MR. ROSSEY: Yes.

MR. DEHAAI: Okay. What we would do then is we would write the report, leave a copy onboard, and then return, you know, to the office on Monday or whatever we were able to do it, and then we would typically e-mail the report to the superintendent of the vessel, the port engineer, whichever title you choose to use and with a copy to the ship, saying we were onboard the Norway in this instance on this date. We, these are our results. We give a brief description of what the results were. We also attach the service report, so

that if they want to look into it further they can. And then we send those off, that is how it was done.

MR. ROSSEY: Okay. There were some, at least what I was seeing, it appeared that there were, let me be a little more specific.

(Pause.)

MR. ROSSEY: The time frame of, from what happened, December of '97 to October of '99, it appears that some copies were sent to Headquarters and were reviewed?

MR. DEHAAI: The service reports? I am trying to remember that. That was when I, '97 to '99, October, that may be the case because of, of, that was my, when I first started and they probably did do that. I think that, if I am remember right, they did do that initially until I understood, got a little more understanding of doing reviews and the processes. And there is a lot of training I was going through initially, too, so the work load would have been excessive to do the reviews. So, I think there was some reviews being done besides me in that first year or so until I was able to get up to full speed as far as what I was doing. And again, a lot of that was --

(Change tape.)

MR. DEHAAI: My familiarity with what I was

doing, it is not that I didn't understand what I was doing as far as the testing and the technical aspect, but it took me a lot more time the first year to do the test than it did, you know, now, you know, the speed because of familiarity with it. So, I think, yeah, initially they would be reviewed by someone other than me.

MR. ROSSEY: Okay. It also appears that, and I think in the time period, copies were sent to Kevin Gilbert?

MR. DEHAAI: That is correct.

MR. ROSSEY: And he was --

MR. DEHAAI: He was the account manager for, for us, for Norwegian Cruise Line, that was his account, and he handled the account.

That is typical of when you do the service reviews, to send it to superintendent and to the vessel and we also copy the account executive, the Drew Marine account executive. So, he is aware of the situations that is going on as well, so, if there is a question or if he wants to address something, they are typically in the loop, so to speak, on, on what is going onboard.

MR. ROSSEY: So, it is correct in saying that sending the reports to Headquarters is not a typical thing. This was more of a training, not training, but,

more --

MR. DEHAAI: It is, it is a typical thing, but, the review being done by Headquarters is, was not a typical thing. We send all service reports to, to the central storage location for all reports. So, everything we go onboard a vessel and create a report, it goes to, but the review is not typical. And that is not the way we are doing it now and after my first year, that, we stopped doing that as well, of having them do a review. But, all reports go to Headquarters.

MR. ROSSEY: Okay. There is also a period, I guess, from, I don't know exactly when it is, but, somewhere in 2001, there are cover letters of reports sent to -- was that, I guess was that typical to send -- I didn't see in some of the other reports.

MR. DEHAAI: Yes, we typically, you know, it depends on how these were filed. We typically, you know, had some sort of cover letter, whether it be a cover letter or it was an e-mail document. You are referring to the cover letter that was like the summary of what we, yeah, that was done whether it be attached to the cover letter or it was the body of the e-mail, we did that, yeah.

MR. ROSSEY: Okay.

MR. DEHAAI: That is what we typically did.

MR. ROSSEY: Okay. Now, Tom touched on this, but as far as at times there are multiple service engineers on the Norway, meaning, one person for a long period of time. As far as everybody being informed, it would just be a matter of, was it just a matter of looking at those reports particularly on ship or --

MR. DEHAAI: Yes, and we talked about it. Yeah, the other service, when the vessel was here in Miami, there was one other service engineer and myself, we would see each other on a daily basis and we would talk about our service, so we would know if there are problems. But, then also we had just a file, you know, that we punched and that top service report went on top, so you could, you would see. You would know, you would have that there as a handy reference to be able to look at what happened last time. So, that is typically how we knew what was going onboard when we were rotating from one guy to the next one, month to month.

MR. ROSSEY: Okay. Were there occasions where the boilers were inspected internally, not by you guys, but other sources. Were you guys ever provided a copy on some of the information, had been made aware of conditions?

MR. DEHAAI: Not that I remember, no. I don't

remember seeing anything, reports on internal inspections that I recall. I don't remember an incident.

MR. ROSSEY: Have you ever had occasions where you found elevated levels of copper in the boilers?

MR. DEHAAI: On the Norway?

MR. ROSSEY: Yes.

MR. DEHAAI: No, I have not.

MR. ROSSEY: Okay. Just in general terms, what to you think that would that be attributed to?

MR. DEHAAI: Again, the chemistry of it, I don't recall exactly. I know that there is, I can't say for sure. I could suspect the outside, I don't off the top of my head, what would cause that. I know if there is copper, but, the exact cause of that, again, I can't say off the top of my head.

MR. ROSSEY: Okay. One other question is when you are on site and water chemistry readings, where your readings independent of those that were done by the ship personnel for that day, or did you guys take the same readings and that is their readings for the day and --

MR. DEHAAI: It varied. It depended, sometimes, you know, they would, they would have, in the logbook they would have test results for the day

and I would, and if they did, what I would do is I would take mine and look at those and it should be, you know, the same or relatively the same, you know, a matter of a few hours different, they should be the same. And, you know, I don't remember specific instances, but some ships if they know we are coming onboard, will wait and take the test with us and observe it and use those as their daily test results, so, again, that varies. The Norway, I think, they typically, and again, those were independent. I think they did their own earlier test. We did our test when we went onboard and I would always reference theirs and if we saw something that was glaring different, that gave us an opportunity to do some training. If we saw that they had a Ph or whatever level there was way different than what we were getting right now, we would say, how did you do this test. And, and maybe a training opportunity, so that is how we did a lot of our training opportunities, you know, notices and stuff like, so.

MR. ROSSEY: I guess one thing that I would like to do now is sort, I have compiled some of the data from the water chemistry logbook. Our focus right now is the hydrogense as far as in a graphical form. I guess and this is data generated from January of 2000

through December of 2000, showing the hydrogense levels for each boiler. I would like you to look at it and make some comments.

MR. DEHAAI: Okay.

MR. CUVA: Is that data extrapolated from what we provided to you?

MR. ROSSEY: Partially.

MR. CUVA: Okay.

Those are, this would be data, you have got the daily logs and it is basically from the daily logs.

MR. ROSSEY: That is correct.

MR. ROTH-ROFFY: And that was Tony Cuva that just asked that question for the transcriptionst.

(Pause.)

MR. ROSSEY: The green portion is where you don't have data.

MR. DEHAAI: Okay.

MR. ROSSEY: Then the yellow portions show where readings were taken. In other words, they were doing their readings.

MR. DEHAAI: Okay.

MR. ROSSEY: Then a blue, the hydrogense is above the specification limit.

MR. DEHAAI: Yes.

MR. ROSSEY: And in red where they are below

the specification limit.

MR. DEHAAI: Okay.

(Pause.)

MR. DEHAAI: And you want me to comment on this, anything in particular, you wanted to --

MR. ROSSEY: Well, first off, any overall comments and then I think I will be more specific.

MR. DEHAAI: Okay. I mean, do you want me to say what I think of the readings as far are they typically good or typically bad or, or is, I mean, is that what the type of direction we are going to, or --

MR. ROSSEY: Sure. I mean, say you are looking for the month, each one of these is a month.

MR. DEHAAI: Yes.

MR. ROSSEY: You are looking at one month worth. What comments would you make?

MR. DEHAAI: I would say that there is not anything out of the ordinary of what I would expect for a typical systems or systems of these types. You know, there is, there is an occasional high, some occasional low readings. But, again, I wouldn't think, there is nothing glaringly wrong or, or either way on this. I wouldn't, you know, from looking at it, it looks pretty, kind of what I would expect to see from, when you were handing this to me, this is kind of what I

thought it look like as far as the readings.

MR. ROSSEY: Okay. Maybe I will be a little more specific at this point. In the period of July through July, August, September, boiler 24.

MR. ROTH-ROFFY: Is boiler 24 the boiler that had the problem?

MR. ROSSEY: No.

MR. ROTH-ROFFY: Which boiler had the problem?

MR. ROSSEY: Boiler 23. For most of July, boiler 24 was not operating. And then when it came back on line, or when they started taking readings, it appeared that there was a period of time of almost three months where hydrogense below specification limit.

MR. DEHAAI: Yes, I see that from looking at it. I didn't see it, but, again, looking at it, this is a typical graph, yeah, that, that appears to be the case for sure. I am not sure, again, you know, as I was saying earlier, a lot of times from the stand by or a lay up procedure, when you initially start up, you will, you know, you will have maybe a low reading for a period of time of hydrogen level until you get your, your adjustments made based on your testing and your dosing. But, for that period, you are looking from

August all the way really down to almost October. And again, you know, without knowing the specifics of why that occurred, there may have been, you know, again, this is just speculation, maybe they had a leak or getting oxygen leakage in the boiler from something. Again, I don't know. Maybe they were having or a steam leak, where they were using an excessive amount of water and they had to, I don't, again, without knowing the exact details of why, I can't say, but, there could be reasons why that would occur.

MR. ROSSEY: Okay. Would you be concerned that a lot of times following idle periods, it came into service with low hydrogense levels?

MR. DEHAAI: I wouldn't be concerned, I mean, because hydrogense levels, there is a margin of error that we have in our specifications for all of our treatment levels. You know, we have a little margin of error for instances where it slips out, that is why they slip out of hydrogen level or -- level for a day or two, or even maybe a longer period, it is not a major alarming situation. We do have margins.

But, you know, and like I said before, I would expect it on a start up to have it for a period of time, because it would be out of range. And I don't think that would be a major concern as long as we are

able to get it to return to normal relatively --

MR. ROSSEY: Would that be an indication that while it is idle or lay up, there is not enough hydrogen?

MR. DEHAAI: Yes, definitely, it could be. It could be that there is not enough hydrogen or it could be when they are start upstart, you know, moving the water out of the system, getting new water in, maybe it takes awhile, if there is a lot of makeup, but, yeah, that is impossible, definitely.

MR. ROSSEY: Just to follow up on that. Does Drew recommend a sludge dosing of a boiler with hydrogen after a period of idleness or is it just through the drip into the feed system that they are suppose to normally build the hydrogen level back up?

MR. DEHAAI: I don't know if they give recommendations for slow dosing or not. With the hand, the normal dosage process procedure, you could turn the stroke up on the pump and the frequency up and you could put extra amorizen in where you could get amorizen in the boiler in a relative, you know, in a relatively quick period, within a day or two, you could add a significant amount of amorizen to the boiler, any chemical a boiler by the normal dosage procedure.

As far as opening it up and putting it in, I

don't think we recommend that. I don't believe. Maybe we do, I have never personally recommended that. Our technical experts may be able to make recommendations as far as dosage, but I have never done that, no.

MR. ROSSEY: If they were to increase the dosage as you say, a stroke or whatever on the pump, wouldn't that, isn't there a common system for all the boilers, wouldn't all the boilers be affected by that higher and possibly put them out of range high?

MR. DEHAAI: If I am not mistaken, I, the boilers are dosed, the amorizen dose is independent for each boiler. And that, the dosage adjustment is made based on the test results of that particular boiler. And that is what is typical for boilers, you know, they are dosed independently and the test results, you adjust the dosage for the boilers based on those test results. So, that is sort the Drew Marine recommendation is that they should be independent for that particular situation, if you have one level is high and one below, lower than the other, and if they are dosed from a common system, you can't get control. So, we typically recommend independent dosing for boilers.

MR. ROSSEY: We have noticed in the logs for .7, .8 hydrogense liters there is no discrimination

between which boiler is getting homocharging.

MR. DEHAAI: Hmm.

(Pause.)

MR. ROSSEY: I am not trying to put you on the spot here.

MR. DEHAAI: No, I don't know without actually, without actually seeing the logs, I don't know. But, yeah, I mean, they should be dosing to a particular boiler. I mean, that is the standard Drew Marine recommendation is independent dosing to each boiler based on your test results.

MR. ROSSEY: Okay. Do the service engineers go aboard and validate the system in terms of where the chemicals are injected, where the samples are drawn from? Do you have a documentation of that somewhere that we could take a look at it? Is that something that you would go and verify?

MR. DEHAAI: I don't know if we have any documentation on that as far as doing it. That is something that, see, that is typically done on, on initial start up treatment or a new dose phase, you know, which, which of course I don't know if we have documentation dating back to when we took over treatment of the Norway or not. Where you go onboard and say, okay, this is Drew Marine program, these are

the chemicals you use, these are the test procedures, these are the recommendation dosages, you know, dose here, dose there. So, it is not something, because it is not something they change. It is not like they, they decide to dosing at a different point, you know, on a particular day. So, it is something that is an initial step in getting, you know, a ship on our treatment program. So, it is not something -- and I never did because, again, they were on our program well before, before I started doing it.

MR. ROSSEY: Okay. In general terms, what are the negative effects of poor water chemistry on the boiler, structurally or internal, whatever?

MR. DEHAAI: Well, you are going to have corrosion and scale formation, you know, you will have staining of the metals if you have continued, you can have oxygen pitting, those of types of things, you know. Corrosion and scale formation, you have, is the biggest detriment of poor water quality, are your metals and then, you know, that is --

MR. ROSSEY: Are you aware of any historical problems, when you were service engineer for oxygen corrosion in these boilers on the Norway?

MR. DEHAAI: Normal oxygen corrosion. I don't, no, I don't remember any, any problems or being

aware of, you know, oxygen pitting or oxygen corrosion situations on that vessel.

MR. ROSSEY: NCL never approached you to get counsel on how they might address an oxygen corrosion problem?

MR. DEHAAI: Not that I recall, no. That issue was never brought up as far as I can remember.

MR. ROSSEY: Okay. Regarding internal inspections, do you know what Drew's recommendation is before the inspection, should the boiler be cleaned or should it be left as it is and after it is on the dock?

MR. DEHAAI: When we do onboard inspections, we like to see it as it is, so if it would be cleaned, then the corrosion cells are gone and you know, the rust formation and the deposits and everything that it in there, is gone, you don't know if you were having problems. It is usually best when you open it up, you look at it, then you know what is going on in the boiler. By cleaning it, you know, you are removing the, the condition of the boiler changes significantly after a cleaning.

MR. ROSSEY: Okay. But, there are times when the boiler should be cleaned. Can you describe when the boiler would be cleaned?

MR. DEHAAI: Drew makes boiler cleaning

recommendations when they have, when it is inspected, and they determine if there are problems, you know, if they have scale formation, corrosion cells, pitting, we recommend going in and doing a cleaning to get that, the main reason for that is to stop corrosion once it has begun. There is only way to do it and that is to do a chemical cleaning in the boiler. You have to neutralize those corrosion cells and prevent that from occurring. Once you have, you know, you can't do anything in an operational standpoint, once you have those type of things occurring. So, when we see that, whether they customer sees it on an inspection or we see it on a boiler inspection, we see it, that is when we recommend cleaning it.

MR. ROSSEY: And does Drew have a chemical that they supply for the purpose of cleaning a boiler?

MR. DEHAAI: Yeah, well, there can be a couple of different cleaning of a boiler, a couple of different problems that would need to be addressed as far as cleaning. Typically we are doing an -- clean, and you know, we could use, one or two -- the names of them are Safe Acid and Descale It. Acid cleaning products. There is also border cleaning as they get, somehow get oil contamination in the boiler. That is a different process. That is not a regular occurrence,

but it does happen. But, yeah, we do have products that we can provide for the cleaning.

MR. ROSSEY: What was the second, the first was Safe Acid?

MR. DEHAAI: Descale It.

MR. ROSSEY: Okay. Do you have any knowledge of tube failures onboard the Norway boilers?

MR. DEHAAI: No, not particular instances that I know of with tube boilers, no.

MR. ROSSEY: Do you think that would be something that would be useful information to you as the chemistry --

MR. DEHAAI: Yes, I mean, again, any information that we can gain on the boilers is useful information for us. We know, if they are having problems, those things are good for us to know. If they are having, you know, again, the more knowledge that we have, regarding the operation of a boiler, the more we can help our customers. In other words, with recommendations. So, yeah, I mean, ideally we would like to know everything that is wrong with that boiler, on a daily basis, you know, but, of course, you know that is not, that is impossible. We get, we get our snapshot when we go on a monthly basis and try to gather as much information as we can.

MR. ROSSEY: Okay. So, again, I am not trying to put you on the spot, to any of my questions, I am not trying to, if you, if you are not sure, that is fine. But, from your recollection, did they ever have any boiler failure problems?

MR. DEHAAI: From what I recall, no. I don't remember a specific, you know, a specific instance where that happened, no.

MR. ROSSEY: Okay. The fellow, who did you relieve when you took over as the service engineer for the Norway, who was your predecessor?

MR. DEHAAI: The person that was mentioned earlier, Kevin Gilbert was, was servicing the vessel as well as another guy that was here at the time, Patrick Lynch, they were handling the service of the Norway.

MR. ROSSEY: You said Patrick Lynch?

MR. DEHAAI: Yes.

MR. ROSSEY: Okay. Did they tell you of any historical problems with the boilers on the Norway when you took over from them? Something to look for, you know?

MR. DEHAAI: No, I mean, again, you know, I went through the training process with Kevin mostly, did most of the training, and he would explain things

to look for based on test results. He would say, oh, you know, we always had a problem with this historically, nothing like that really came about. It was just, you know, he guided me as far as what I was doing onboard, things to look for, but, there was not, you know, a definitive thing saying we had continued problems with this over time. No, there is no nothing like that.

MR. ROSSEY: Okay. You didn't talk about oxygen corrosion problems or other problems?

MR. DEHAAI: No.

MR. ROSSEY: Historical problems with the boilers.

MR. DEHAAI: No, not that I recall, no.

MR. ROSSEY: Okay. Did you have periodic meetings with NCL management, technical management on, on the servicing of the boilers?

MR. DEHAAI: No, what was typically done with our customers is the service engineer goes onboard the, the, the onboard testing, that is why, you know, then they come off and it gets sent to the, the NCL office with the copies going to the account executive, because the account executive does the, on the typical basis, gets with the customer and the office, with the management. They go in and discuss, you know, the

service reviews and trend, you know, those types of things. The, as the role of the technical service engineer, that is not typically done, no.

MR. ROSSEY: So, it would be the account executive who would do that.

MR. DEHAAI: Meet with the office.

MR. ROSSEY: With the customer.

MR. DEHAAI: Yes.

MR. ROSSEY: On technical matters or on financial matters?

MR. DEHAAI: Both usually. I mean, that is one of the things that we at Drew Marine desire ourselves on and as a selling point of us, is that we our account executives aren't just sales guys, person, products, they are technically knowledgeable of what we are doing and we have marine ears and so they have the technical background to be able to deal with the people in the management levels as, that is one of our selling points. That is they way it is typically done. Occasionally, we may take, a service engineer may get directly with the port engineer or superintendent, it is not the norm.

MR. ROSSEY: So, who in recent years, if it has changed, who is the account executive for Norway?

MR. DEHAAI: Jim has been for the past --

MR. MUNT: Since '99.

MR. DEHAAI: Ninety, nine, yeah. Jim Munt.

MR. ROSSEY: Okay. Jim, maybe you take a little break.

MR. DEHAAI: Okay.

MR. ROSSEY: Jim, could you describe the interactions you have had with Norway on technical matters, with NCL about the Norway boilers?

MR. MUNT: Yes, typically, as Jeremy described, I would be more, I would have the visibility to service report at the time after the service was done, and typically, we try to target five business days to return the report back to the superintendent engineer, as well as a copy, as Jeremy described, back to the chief engineer and the engineering staff. So, then I would get visibility at that particular time of the service and the report. And I would do the cursory review of the cover letter, cover e-mail, and the contents of the service report as far as the ph and the amosene(ph) levels and things like that. Then that would give me visibility to discuss with the superintendent engineer or even one of the technical person side, if there was some particular issues on ordering of the testing and things like that. So that I could support with the office personnel what things

are going on and make recommendations with our service engineer as well our internal technical management located up on Boon. So, that would be the typical process.

Did I answer the question?

MR. ROSSEY: Yes, how about the specifics? Can you tell me about any technical interactions you have had with anybody at NCL, Norwegian Cruise Lines or aboard the Norway?

MR. MUNT: That is a very, that is a general question. And of course, we, we try to have a business relationship with them where we can continue to support their technical operations. And also be selling our products and services to them. So, you know, we say, I mean, I am, I don't know, there is nothing specific coming to mind.

MR. ROSSEY: Have you ever had the occasion to meet with any of the port engineers, shift superintendent, vice presidents regarding water chemistry problems, such as oxygen corrosion or boiler tube failures on the Norway boilers?

MR. MUNT: No, nothing, nothing specifically to that latter part of question. I have had the opportunity to meet with their technical management people, superintendent engineer on a routine basis, but

specifically addressing oxygen corrosion and what was the other question?

MR. ROSSEY: Boiler tube failures. So, maybe tell us about what you have talked about and how often you have talked.

MR. MUNT: Again, I guess, my primary role is to support their technical operations and to sell them products. And on the Norway, we have what is commonly referred to in our Drew Marine world, as an ultra marine service, technical service and chemical supply "agreement". And then we would liaison with them both on the monetary side, negotiating pricing levels as well as define our technical services to them, what we are going to do while onboard. And so my main thing would probably be more on the business side, I guess, but, with the technical background. You know, occasionally I would go visit the ship, go along with the service engineer to have that kind of activity and the visibility if he sees an e-mail coming, the chief engineer onboard the ship is tied with an e-mail from me or whatever that he has a face with that name, oh, this is the Jim Munt guy. So, you know, we try to stay in tune with that. I don't remember any specific technical issues brought to head with the technical management, as far as, of Norway's boiler water

treatment, or boiler conditions per se. Occasionally, we would, when we are renegotiating contract, we take a look at their chemical usage, their chemical consumption. We take a look at the GC, the adjunct fee, the amosene usage, then to establish the next contract period as far as the pricing level. We will talk at that particular time about the amosene.

(Pause.)

MR. MUNT: We discuss by reviewing the prior year, the service reports. We kind of do a business review. We look at the chemical usage in each area. And we raise up possible questions, like if their amosene levels were high and then sometimes we get some general feedback saying, well, we have a lot, for instance, outside, we had a lot of steam leakages, so our amosene level required, we need more amosene on this particular time period because we had a lot of condensation leakage. We had to use a lot of makeup water going back into the system and hence, from a technical standpoint, you have heard about the hydrogen usage and what it does. It combines with the dissolved oxygen to reduce the corrosion aspects of it.
So, those types of general questions. But, we wouldn't necessarily get into what are the conditions of the boilers, and as Jeremy alluded to, that would be if,

that is what we would like to do because that is where we provide greater value to them, if they did have, if they did, for instance, remove a tube or something like that, we would like for them to let us know, because then view their sample. We of course have metallurgical laboratories that we align with or have and then you, we can find out a lot of information from that. And then you can make recommendations as you go forward as far as refining your chemical treatment program, making changes to their dosage rates, focusing in on certain areas. Things like that. Also we, we discuss with them issues with regard to, I heard some of the conversations coming up, amosene, one of the things it does is, it is a volatile constituent in that treatment, hydrogen, comes from the condensate system and helps to protect some acid corrosion coming back in the condensate system. That is phorolene(ph) base product, but if you have too much of that, it can break down, in combination with ammonia, and oxygen, it can start to attack corpo alloys, you know, copper. And certainly in the main condensers of these type plants, these proposal plants, they are typically cooper, cooper, nickel type of material. And if there is an excessive amount of ammonia in there, the reason I am telling you this, this is the type of conversations we

would have with them. The guys that I dealt with are very aware of this, they were typically chief engineers onboard the Norway and they know about these types of situations that arise. So, we just talk about it and say, you know, you have got to be careful, you know, if this ammonia gets back in, it breaks down the copper. It can get back into the fuel system and it can play out in the boiler systems and on the tubes, and then you get galvanite corrosion cells and things like that. You just be open about discussing these things.

And, you know, again, we try and do, sell our copper and water treatment technology. Drew Marine's services and product solutions. And then we try to get the highest amount of money for, to support these, this competency in these products, supplies. So, that is kind of what our discussions would go from my standpoint.

Again, I don't recall any particular instance that I asked the number of questions of Jeremy, did you know of any boiler tube failures, any awareness of those type things. And as Jeremy alluded, we, our service reports are snap shot in time. And we, we also, a monthly visit while they are in port, which is not an operations condition that they are designed for. They are designed to move and, and, so the in port condition

is not necessarily indicative of what their outside normal operations are, when they are not in port. And we don't necessarily have visibility to that. We can look at their logs, in which we do when we are onboard to do our services, and make comments on them based on what we are seeing recorded in those log sheets. And then also certainly what we find on that particular day, during that particular service visit, we make comments for that and if the engineers onboard are telling us certain instances, we support with recommendations, they need to a new reagent or something like that, and give an ordering barcode number, things like that.

It is kind of a general overview of kind of the sales, account management side of our business and how we work together from the technical service onboard the ship as well as from sales, technical support to their, the office.

MR. ROSSEY: Okay. Jim, would you say typically you would meet maybe once a year with NCL management or more often or less often?

MR. MUNT: More often, but, when you say technical management, or their management, you know, I would say monthly. I visit with the superintendent engineer, maybe have a business lunch, you know, and

talk about some things, maybe monthly visits to, that may include or be separate to their purchasing, technical purchasing managing people. Maybe just as a political, "hi are you doing" type of call. And in some instances if they call Jim about pricing issues or even logistics, delivery issues, sometimes those things would come up. Yes, monthly visits to several of their people in their organization, but it is not always the same people.

MR. ROSSEY: Do you recall who the shift superintendent is?

MR. MUNT: During my tenure here, mostly I have been dealing with Kingscote(ph), prior to that, their management has changed during my tenure here, Drew Marine dealt with -- who is a technical director. There is no other -- Also I believe Johan Hanson, I dealt with in some instances. And as far as Norway possibilities, that I believe was pretty much it, on my side.

MR. ROSSEY: Okay. Did you ever meet Chris Foong?

MR. MUNT: I know the name only recently through, through periodicals that have been on webs and things like that. As far as, I think he joined the organization recently as a technical director, VP of

technical operations, but I don't know him. I only know the name from, from advertisements or periodicals.

MR. ROSSEY: Do you happen to know who his predecessor was?

MR. MUNT: I don't know if he had a predecessor, again, the management changed so, I don't know if I can answer that question correctly. I, I, Anderson is the guy, whose name I know is in there, I know, but, I don't know if he replaced or it is a new position.

MR. ROSSEY: Okay. Yeah, I was just trying to, we will actually be talking to Mr. Foong tomorrow.

MR. MUNT: I think he is relatively new. He may even be coming over from the Star Cruises who owns NCL, that brought them a number of years ago.

MR. ROSSEY: Okay. So, if the Norwegian Cruise Lines had a problem with or say not a problem, they had some boiler tube failures, you say that would be something useful, kind information that you would like to have?

MR. MUNT: Yes, exactly. We would value that information because we felt, we would feel that that information could be helpful to us to help them, you know.

MR. ROSSEY: And what mechanism do you think

that information should come back to you? Would it be to you or be to the service --

MR. MUNT: Typically, I mean, it could come to me. I am like, even if Cuva got an e-mail from the chief engineer from the Norway, saying I need this, Cuva would probably e-mail that to me and say, hey, Jim, can you take care of this. So, yeah, typically if there is some particular need that Mr. Cuva would be aware that needed Drew's attention he would come to me. So, yeah, if I would think that the, the -- I am at the conduit to our organization as far as the service and support we can provide them. But, that doesn't mean like Jeremy and/or other service engineers have been on the ship that have given their business card to the chief engineer, that they may go onboard and you see it in the logbook or something like, they may e-mail him directly. And I might get to know that through our guys, hey, Jim, they are asking me for this, that and the other thing, what do you think. And then I, it is nice that I can get involved and that there is a particular question I may have or, again, from a sales standpoint, the knowledge is good, you know, having information gives you ways to provide better service, you know.

MR. ROSSEY: Jim, could you tell us a little

bit about your background and how long you have been with Drew?

MR. MUNT: Yes. I am also a marine engineer by education. I went to Maine Mariner Academy, I went through the, the engineering program, the engineering program there in 1989. I sailed on my Coast Guard ferry assisted engineer's license for the first two years. Actually I was on the high pressure steam ship, 600 psi main propulsion system. And then I, my career path then went to a sales, technical sales applications engineer outside of Philadelphia. I was working for Fishers Controls, with control valve manufacturer. I was working for a representative in that territory in the Philadelphia area. And then worked there for some time, getting experience in sales and technical sales. And then I had a position with an automatic switch company and manufacturer of transfer switch gear, emergency power switch gear, working on, on outside sales, technical sales support, primarily for power industries and things like that.

Then back to Fisher Controls, subsidiary called H.D. Boundman, another manufacturer of controls up in New Hampshire, Portsmouth, New Hampshire, working as an industry manager in sales support role and technical support in industry specific areas, segments,

business development area. And then had this opportunity with Drew Marine essentially through some networking, reconnecting to me with a passion in the marine industry, coming down here to fill a role in the accounts sales area in '99. And supporting our sales responsibilities as far as some reaccount assignments.

MR. ROSSEY: And about how many accounts do you manage?

MR. MUNT: Oh, we kind of, we have kind of a team work, so if one guy is out, one guy is in, then we try to liaison so that everyone is a little bit aware of their business, each account business structure and things that are going on. I have primary account responsibility for Carnival Cruise Lines, Norwegian Cruise Lines, Seabolt International, a couple other accounts. Maybe like say five, five primary accounts, but we split up some other accounts. Two percent of all our business comes from, 100 percent or like 98 percent of our business comes from two percent of our customers.

MR. ROSSEY: And can you give me an idea about how many steamships are serviced by Drew Marine in this area?

MR. MUNT: No, I really don't know. The only one I am aware of was the SS Norway, you know, most of

the ships in the accounts that I am involved in and aware of in our territory most of the ships are welded to the newer design, motor vessels, you know, with boilers on them, but as an auxiliary type of system.

MR. ROSSEY: Okay. This is a technical question, going back to Jeremy. Since we have talked mostly to you about the technical, what you look for in the logs, you said occasional spikes of chloride is something you may not be concerned with, that may be somewhat normal. When would you be concerned as far as, if it is pick a limit on parts per million, if you see something above, when would you start becoming concerned?

MR. DEHAAI: I mean, thinking as far as levels. It is a tough question. Even at a particular high level probably wouldn't be a grave concern. It is more, for me, I think what I would look for is trend. If they have, you know, a level that is 100 parts per million above the limit and is that way continually, I would be more concerned than I would if they had one or two or three day spike where it is 500 or 600 parts per million above the limit. That, that, it is, that is what, just from my point of view, that would be more of a concern to me because if they had spikes, if it is corrected quickly, your problems can be resolved a

little bit better than if you continual problems. As far as throwing a number on it, I don't know that I could put a number, a particular number on it. Yeah, again, I would just look for the trend than say number, certain number where I would be, all of a sudden I would be alarmed by it. It would be more of a trend situation. And looking at other aspects as far as treatment, too. If they had a high chloride and the ph is low, than that is different than high chloride and the good ph level. Those types of things. So, it is, to put a particular number on it, I really can't do that.

MR. MUNT: Jim Munt speaking, if I can just add to that. You know, we do have those limits that we publish for this whole, you know, for Drew Marine programs, also for low pressure boilers and different treatment programs that we have. Also, along with that another measurement parameter -- is this an indication of water hardness or some contaminates that could be essentially in the system. Total dissolve solids is really our measurement for one of the control parameters for blow down of the boilers, surface blow down. So, that would be more indicative or a more better measurement parameter to determine contamination. Now, if they get salt water leakage in

the condensers or some type of heat exchange that is getting back in the boiler feed, that would become apparent both by the chloride readings as well as the total dissolve solids will significantly increase. Or if there is other systems, other fluids that are somehow in indirect contact or heat exchange systems that are somehow being heated by the steam or heated by the condensate, somehow, getting indirect contact with the boiler steam and/or water cycle. Now, those are why we take measurements.

Now, we will also communicate to the office if we see a high level and also it is indicated on the report that this is a problem. But, the other thing about treatment programs that was alluded to earlier, we have a reserve built into our treatment programs to help offset some, you know, instances where you may have a contamination or a situation where you have a problem that can contaminate the water. And so that, you know, they are doing daily testing, working on monthly, and we are querying the engineering staff on what has been going on, if there is any indication, any problems that we need to be aware of before we do the testing. But, you know, those controls parameters are published, you know, and if they get above them, they are also in the, in the literature and things like that

on our control dosage charts, indication of what to do when you find those, those measured values. But, again, we are always there on a monthly snapshot of time, you know, the operations, daily, in-between those times, the guys are monitoring that type of things and taking corrective actions based on their measured values.

MR. ROSSEY: Talking about dissolve solids, what would that measure as?

MR. MUNT: Conductivity. It is probably some type of chart that, you know, cross references total dissolved solids as equivalent values to micromoes or micro -- as they, as they measure conductivity and you measure water, to save water is essentially non productive, but you get things in there, it starts to conduct electricity and you measure those levels. And that is an indication you have dissolved solids in there. And those could be harmless, again, contributing to deposits on heat transfer surfaces and things like that. And they end up going into that hole, if you look at water treatment technology and what that means, you get deposits and under deposit corrosion, galvanic corrosion aspects.

MR. ROSSEY: How many, just in general terms, you are talking about total dissolved solids for

monitoring conductivity. If your conductivity was up range, how many days following would you be concerned?

MR. DEHAAI: Well, as soon as you see conductivity out of range, you would typically go down to your surface blower and the blow down, skim valve, or scum valve, sometimes the terminology is used differently, but a blowing down of the boiler so it is a reduced, and then if it comes right back up, engineers are trained and knowledgeable that they have a problem here, you know. I have got to go find what, where this total, where this, why have my conductivities gone up. And they start to look at various systems and, associated systems, to find out where the problem is, making corrective action whether it is a heat exchanger leak or a condenser leak. One of the things I know I did here, there was a time, was not boiler tubes, but condenser tubes needing to be replaced in the normal. Again, I know the circumstances there, but, but that is the typical and actually an expected thing on a ship of that age and also when you plug tubes in a condenser because of a leakage, that is, that is just kind of an expected thing over time. And they actually have a ratio of the number of tubes versus the number that they plug up for efficiency purposes, you know, for when you are

condensing the steam that is being used for --

MR. ROSSEY: Maybe, I can ask Jeremy about the condenser, but just touching on what you have said, they had problems with chloride and I think it has been related to condenser tube failures. Is that something that Drew Marine would be interested in looking at, trying to --

MR. MUNT: --

MR. ROSSEY: Yeah, while they are having condenser tube failures or is that kind of outside, out of your kind of purview of --

MR. DEHAAI: I mean, again, as I was saying before, we like to know everything that is going on as far as outside -- and if they do have condenser tubes that are failing, that they are actually removing, again, as Jim said, we have a metallurgical lab that we could send those to. I mean, again, that would be nice. Any information that our customers provide us regarding their operations, not just the boilers, but, their normal operations, the more information they provide us, the easier it is for us to provide them specific service better, you know, so, any information that we get is good.

MR. ROSSEY: Is there any issues with water chemistry that can affect condenser tube failures that

you know of?

It is pretty broad, I guess does anybody, I guess, in the room know why they would be having condenser tube failures? Does it have anything to do with low levels?

MR. MUNT: This is Jim Munt speaking once again. What we just talked about not too long ago, one of the things would be a -- attack, you know, but --

MR. DEHAAI: Age.

MR. MUNT: And you don't expect a thing to age, age, you know, would also contribute to something like that.

MR. ROSSEY: But, the nature of the condenser tube failures on the Norway never came to your attention, was something that you needed to look into or address or other than, you know, the contamination problems with the boiler, it is not something that you looked at -- is that correct?

MR. DEHAAI: Are you asking did anybody on the Norway ever advise Drew Marine --

MR. ROSSEY: Yes, either way, did they ever talk to you about their condenser tube problems and ask you for advice or did you independently look at, you know, the rate of condenser tube failures and say, you know, maybe something is going on here that maybe we

should look at? I don't know if I am phrasing the question right, but, I mean, if they have been having condenser tube problems, or is this something that you can help them with?

MR. MYER: Yes, this is Pete Myer. Yeah, with the chloride leaks, I think I inquired once with the chief why, where were the chlorides coming from, because that is the first question you ask where are they coming from. And he said, they have got a condenser leak and they were trying to fix them. But, beyond that, we don't get in their repair, all we can say is you need to stop the leak, the sooner the better. But, beyond that we can't, we don't have much control over how soon they fix it.

MR. ROSSEY: And you don't have any recommendations in that area to, to address the problem?

MR. MYER: No, we can only look at the past readings. Can I look at these?

MR. ROSSEY: Sure.

MR. MYER: As far as back -- We can look at the --

MR. ROSSEY: The first incident or pre --

MR. MYER: Pre, you know, I have never been on, I havent involved with the ship -- You know,

looking at the level, I didn't notice from my, looking at my last report, it wasn't --

MR. ROSSEY: Okay. We will shift to you now. Could you tell us about your background and how long you have been with Drew Marine?

MR. MYER: I graduated from Richmond Academy in '93 and then I sailed for quite some time. I got a chief engineer's license, diesel and third engineer steam. And I started with Drew in June of 2002. Started working in Miami November 21 of 2002, last year.

MR. ROSSEY: Did you ever sail on steam ships when you went to sea?

MR. MYER: Never --

MR. ROSSEY: Tell me about your association with the Norway. Did that start immediately when you came in 2002?

MR. MYER: I don't remember the first date I was on the ship, I don't remember if it was December.

MR. ROSSEY: So it was sometime in late 2002.

MR. MYER: 2002 or early 2003.

MR. ROSSEY: And did you take over primary responsibilities of the Norway service, servicing the Norway?

MR. MYER: No, I traded off with the other

service engineer, Clayborne was the other.

MR. ROSSEY: Did Mr. Clayborne, did he it only before you came?

MR. MYER: Well, I took Jeremy's spot and like I said, no one, service engineer is not in charge of any particular one vessel. Whoever is available to see it.

MR. ROSSEY: Okay. So in other words, they are not assigned.

MR. MYER: No. Not ship has an assigned service engineer in particular.

MR. ROSSEY: Kind of whose available at the time, who is not servicing other ships.

MR. MYER: Correct. Generally, a ship coming in Miami, it will be in the service engineer available in Miami.

MR. ROSSEY: From your experience, how many steam ships do you look at here in Miami?

MR. MYER: Minus the Norway, maybe two or three a year.

MR. ROSSEY: Every couple of years, well, let's see, working on the Norway, did you ever have occasion to do an internal inspection of the boilers?

MR. MYER: No.

MR. ROSSEY: Okay. Were the boilers ever shut

down or opened up while you were onboard that you know of? Did you ever go down in the boiler room?

MR. MYER: No, I never physically looked at the boilers, inside the boilers. And if they were open up, I don't recall any particular incident where they said, yeah, it is opened up, take a look.

MR. ROSSEY: Did you ever go down in the boiler room?

MR. MYER: No.

MR. ROSSEY: To look at the boilers.

Jeremy, same question, did you ever go down in the boiler room?

MR. DEHAAI: No.

MR. ROSSEY: Okay. So these boilers could have been open while you were onboard, but, you wouldn't have known it unless they told you, is that correct?

MR. DEHAAI: Yes, that is correct, yes. It is sort of a typical, that is a typical thing for what we do, is, you know, unless there is a specific reason to go to a certain area of the vessel or unless the crew asks us to, or unless we ask to go there, there is a reason for it, we don't make our way on the vessel openly, because, you know, of the security issues and, you know, there is concern with just having, even though we are on the vessel on a regular basis, they

know us as the Drew rep, we don't make our way around the vessel without accompany for those reasons.

MR. ROTH-ROFFY: Okay. Okay. Back to Pete.

In your time as servicing the Norway boilers, do you have any recollection of any specific problems that come to mind in terms of chemistry problems?

MR. MYER: No, just an occasional high chlorides. I don't know how far they were always out of spec, right. This one, it was 20 ppm or 18 ppm, I think, occasionally to be --

MR. ROTH-ROFFY: Do you have any knowledge of tube failures since you have been working with the Norway?

MR. MYER: Just from the condenser tubes

MR. ROTH-ROFFY: Nothing on the boiler tubes.

MR. MYER: No.

MR. ROTH-ROFFY: Do you have any knowledge of oxygen corrosion problems on the boilers?

MR. MYER: No.

MR. ROTH-ROFFY: And can you tell us about your training since you have been with Drew Marine?

MR. MYER: Similar to Jeremy. There is a technical course, kind of self read, and then also practical experience and then discussing with, you know, senior personnel.

MR. ROTH-ROFFY: Do you have anything?

MR. ROSSEY: No, maybe just one, the same question I asked Jeremy, but if these boilers off and then they come back on, there is low hydrogense, would you make comments about that?

MR. MYER: Well, if there is low hydrogense, as long as you get a residual, that means theoretically there shouldn't be any oxygen and everything is -- So, if you have some indication, but, I would say, you know, you want to get it up within limits just as soon as practical to offset any possible oxygen that might get in there and then it will lower it again. So, if it is already low, then you get oxygen, then it might use the rest up. Whereas, if you have a cert residual, you know, it will protect you, if you do get some oxygen in there. So you never do run out of hydrogense in the system. Does that make sense?

MR. ROSSEY: Yes.

MR. MYER: So if you have just a little bit, that doesn't mean you have an oxygen pitting right there. You still have some hydrogense left to absorb any oxygen that might get in. So, my recommendation would be to raise it as soon as practical, you know.

MR. ROSSEY: Okay. Maybe, let me requantify low. If there is zero hydrogense --

MR. MYER: That would be a concern, yes.

MR. ROSSEY: Okay. So, have you had a chance to look at this chart at all?

MR. MYER: No.

MR. ROSSEY: Would you look at it and just --

MR. MYER: All right.

(Pause.)

MR. MYER: On this, you have .01 as the residual, so, the zero, I would be concerned about the --

MR. ROSSEY: This is not, this is 2000 period.

MR. MYER: Okay.

UNIDENTIFIED SPEAKER: That is only 2000.

MR. ROSSEY: That is correct.

UNIDENTIFIED SPEAKER: I thought it was 2003.

MR. ROSSEY: And, again, discretions may be more, if you review the log, that is sort of what you are going to look at, and --

MR. MYER: I do see lower than the specs and there are some key times was zero, yeah.

MR. ROSSEY: And how would you --

MR. MYER: You look at the logs -- 24, you had some periods of lower than normal hydrogense levels for the month of August and September. You know, I don't know why that could be cause, definitely, will look

into the reason whether it is excess makeup or whether they just did not put enough in there or I don't know how oxygen could -- We would have to look into why it is getting low, I mean, there are several areas you can look into that.

MR. ROSSEY: Okay. Now, on a similar issue, we know that there are occasions where four of those were shut off for 40 days at a time. And not necessarily that particular year.

MR. MYER: Why were they shut off for 40 days?

MR. ROSSEY: Excuse me?

MR. MYER: Where they doing maintenance on the boilers?

MR. ROSSEY: I may not have the specifics for certain areas, but, I did go back and say 1997, and I looked back in that out for the cycling, when they were on and when were they off. This is the stoker's book and as I said, I don't necessary have the reason why they were off.

MR. MYER: All right.

MR. ROSSEY: But, there are periods of time when they are off for 20 days, 30 days, 40 days. And I guess my question would be from a chemistry point of view, would you guys have concerns?

MR. MYER: If it was 40 days and there is

water in the boiler and it is not out in the shipyard, or everything is so called normal, yeah, 40 days, definitely. Just the water and leaving it in there and not testing the water, yeah. Without any other circumstances.

MR. ROSSEY: What about 20 days?

MR. MYER: Yeah, I would, my recommendation any time there is water in the boiler it has got to be treated.

MR. ROSSEY: Okay.

MR. ROTH-ROFFY: Anything else for Pete?

Jim?

MR. MUNT: I just want to comment on this amosene and these logs, the tabulation period, just one of the things with the boilers and again, as they cycle them or as they operate them, the steam demands are going vary on each boiler. And you have a feed water regulating valve that opens and closes based on the amount of water that is being called for by the boiler level control system. Then if that valve is closed, the boiler is not calling for any water, there is no chemical going in there. There is no, so, the expected level would be to go down a little bit, you know, if they are not using it. No fire in the boiler, there is no water being called for. There is not going to be

any injection of the chemical.

MR. ROTH-ROFFY: Okay.

MR. MUNT: So what was in there, should stay in there, you know, again until the next time they get it operating again, you know. We weren't privy to the number of days that each thing was in and out, you know, boilers on and off or in standby or whatever mode you want to call it.

MR. ROTH-ROFFY: Okay. Can you remember sludge -- hydrogen after the boilers coming out of an idle status?

MR. MUNT: Well, again the water has been treated --

MR. ROTH-ROFFY: Well, say it has been down for a couple of weeks and it is, you know, they didn't boost the hydrogen, and now they are returning it to service --

MR. MUNT: Was it empty?

MR. ROTH-ROFFY: No, it was in wet position.

MR. MUNT: The first thing I would do is test the limits, test, if it is zero, then I would recommend if you can slug this, you have to get it pass -- and shock it.

MR. ROTH-ROFFY: Of your knowledge of the dosing system of the hydrogense on the Norway is it,

are you able to independently dose the --

MR. MUNT: I don't know that.

MR. ROTH-ROFFY: Okay.

MR. ROTH-ROFFY: Okay. So, I think those, Leif, do you need a --

MR. KRISTOFERSON: No, no, that is fine.

MR. ROTH-ROFFY: We have been going at it for --

MR. KRISTOFERSON: You have covered most, most of the area.

MR. ROTH-ROFFY: I think we do have a couple of questions for you.

MR. KRISTOFERSON: Okay.

MR. ROTH-ROFFY: On maybe the organizational sort of things that go on in the office.

Could you tell us what your position is and how long you have been here?

MR. KRISTOFERSON: Well, I have been Drew since 1974 in a variety of capacities. For the last two years I came to Miami in 2001 and I have been here for these two years.

MR. ROTH-ROFFY: And what is your current position, sir?

MR. KRISTOFERSON: My current position is the area manager for the South -- and Caribbean Region.

Basically responsible for the development, customer development and account sales. I am not directly responsible for organizing the service, but it is part of the customer responsibilities to make sure that the service aspect is also, also covered.

MR. ROTH-ROFFY: Okay. Are these gentlemen at this table your subordinates?

MR. KRISTOFERSON: Well, Jeremy and Jim reports to me. Pete reports to -- in the service capacity and what we refer to as a dotted line as far as the organizational to the customer structure is concerned to meet in Miami.

MR. ROTH-ROFFY: And who would Pete's supervisor be?

MR. KRISTOFERSON: Pete's supervisor is -- Sommers up in Boonton. And he is the, he is managing the service organization in the Americas.

MR. ROTH-ROFFY: Okay. And how many such service engineers are here in Miami office?

MR. KRISTOFERSON: In the Miami office at the moment there is Pete is the only service engineer, that is full time service engineer. Due to the customer structure there is sort of a -- organization here that when there, when it is necessary to have Pete duplicate himself, both Jeremy and Jim and Tim Clayborne will

step in, but that is not their particular function.

MR. ROTH-ROFFY: Okay. And Tim Clayborne, what is his job title?

MR. KRISTOFERSON: He is a, he is a marketing specialist for our technical product line. He is currently based here in Miami, unfortunately, he is not physically here right now.

MR. ROTH-ROFFY: Okay. And was he at some point assigned as a service engineer on the Norway?

MR. KRISTOFERSON: He was the service engineer, together with Jeremy originally and with Pete, most recently when we had two service engineers. There was no particular assignment to any ship or any customer due to the nature of the customer based here and so we would, we would have schedule service and the requirement of not necessarily assigned certain engineers to the various ships.

MR. ROTH-ROFFY: Okay. And, sir, your background with Drew, did you have any technical training also, did you have technical training?

MR. KRISTOFERSON: In the variety of functions that I have had, there has been numerous technical training over the years. There has been in house training. There has been a couple of out source training. Drew at one point had the program where you

would have, that they would have diesel, diesel training, steam training, diesel training at Tim Point where some of the service engineers and account people were -- In house, classroom training. And also the self, self training.

MR. ROTH-ROFFY: So, you were, you say the regional director, is that your title?

MR. KRISTOFERSON: Well, it is referred to as the area manager.

MR. ROTH-ROFFY: Area Manager.

MR. KRISTOFERSON: For, for this particular geography, correct.

MR. ROTH-ROFFY: Do you provide technical guidance to the service engineers --

MR. KRISTOFERSON: The technical guidance on, as far as technicalities are concerned, this is through our headquarters in Boonton. The guidance and how we are operating the various geography is more of to the local requirements and the customer requirements. It is more sales, sales and customer development functions than a specific technical function.

MR. ROTH-ROFFY: Okay. This question is actually for everybody. I am not sure if anybody has any contact with Bureau Varasco? Are you familiar with that organization?

MR. DEHAAI: This is Jeremy, I am familiar with Varasco, but, I haven't had direct contact. The name is familiar to me, but just as far as direct relationships, no.

MR. ROTH-ROFFY: Have you ever had occasion to observe a surveyor onboard on the ship from Bureau Varasco?

MR. DEHAAI: No, I have not.

MR. ROTH-ROFFY: Pete, are you familiar with the surveyors down here in Miami?

MR. MYER: I am familiar with the function, but I havent had any contact.

MR. ROTH-ROFFY: Jim, any contact with Bureau Varasco?

MR. MUNT: No, I have not had any. I am aware of them as well, but, their function, but, not --

MR. ROTH-ROFFY: And Leif?

MR. KRISTOFERSON: No, I know the company, and no, I have not had any contact with them.

MR. ROTH-ROFFY: Because they serve as the classification for the Norway. They inspect the boilers and periodically they may come across some observations, you know, in terms of boiler conditions that might be useful to Drew Marine.

But, nothing like that has been passed from

Bureau Varasco to Drew Marine. Okay.

MR. KRISTOFERSON: The contact with the, with the classification societies, not from the local basis, but, typically it is with Marketing Department and Headquarters. Locally it is more, other than personal basis, you get, you know of the people, you may meet them on the ship, but there is no technical interaction between the classification societies and us locally.

MR. ROTH-ROFFY: Does anyone at this table know the name of the local surveyor for Bureau Varasco?

UNIDENTIFIED SPEAKER: Kevin --

MR. ROTH-ROFFY: No, he is actually representing the Bahamas Maritime Authority. And I knew I knew that name, it just wasn't ringing a bell.

Okay. The use of the graphic logs, the onboard docking logs, is that optional for the ship? You mentioned, Jeremy, that they used to use it and sometimes use it, sometimes they don't, but not require that they submit as part of the contract, the readings, the monthly readings.

MR. DEHAAI: No, no, we do not. The onboard logs, that is an additional service that we provide to the customers if they so choose it. It is not abnormal for ships to not submit logs to us. There are several vessels that do, they have a book and they write their

test results in that. That is, again, you know, we, we offer the onboard drafting logs as a tool for them. And for them to monitoring and for them to send them to us, but, again, it is not an abnormality for a vessel to not send the logs to us. It is not a requirement of our program. Again, it is just something that we offer as an additional service.

MR. ROTH-ROFFY: In your experience with the different customers you have here, is it more normal for the ships to send you the logs or for the ships to not send you the logs?

MR. DEHAAI: Well, I would say it is more normal for them not to send the logs.

MR. ROTH-ROFFY: So, for the majority of the customers do not submit these.

MR. DEHAAI: In this, in this geography, the customer base, we have, in the cruise ships, most of them do not submit readings to us. Our access to logs is onboard.

MR. ROTH-ROFFY: And your access to onboard logs is kind of limited to the previous month, you don't necessary go back two years and see how things were going.

MR. DEHAAI: No, that, not, it depends on the vessel. Some vessels, you know, the Norway and the

ones that do it the book, you can go back as far as the book, sometimes they get six months of readings in there. Some ships they will keep all their logs in a three ring binder and you can see two or three years worth. Some ships, they have, you know, a couple of months. So, it varies from ship to ship.

MR. ROTH-ROFFY: Okay. Anything, Bill?

MR. ROSSEY: No, I don't think so.

(Pause.)

MR. ROTH-ROFFY: This is kind of a difficult question to ask, and probably difficult to respond to, but, we have heard from one of the folks at Drew Headquarters about the difficulty the service engineer is placed when he goes onboard the vessel, but he has to kind of manage conflicting interest between his employer, between the chief engineer, between the second engineer, between the engineering management of the company, you know, if he finds a problem, he has to be kind of, a little bit sensitive on how he deals with it, you know, so that, you know, he continues to maintain a good relationship with the various people we just mentioned. Can you tell me a little bit about that, is that something that you have had to deal with?

MR. DEHAAI: Definitely. I mean, it definitely does happen, you know, but, again, we as an

organization always, all of our recommendations and things we do are technically sound and technically based on our program. But, there is, there can be some, some, you know, you can create some anxs with the chief engineer if you leave the ship and send a report, you know, do a review and send the report to the superintendent saying the ship is a total mess, you know, they have major problems. The chief engineer next time you go down, is not going to be quite as friendly as he might be regularly, you know. But, you know, so you have to be careful, you know, how you word when there are problems. Yeah, everything is, you know, that we do is very factual. And if you do it in that manner, you may still get somebody that is not happy with you. But, at least, you can say, well, I am just stating the facts as they are, you know. So you have got to be very careful of how you deal with the different people, you know, the sensitivity to those things, but, again, myself and our organization, if we do everything very factual, and, and, you know, with elaborating and throwing editorials on things, those typically issues, they get resolved relatively quickly because, you know, the chief engineer may get his, may get his butt chewed by the superintendent because of a problem we noted. He is not going to be happy with us.

So, if you go and say, listen, chief, you know, we are stating it as, these things can be smoothed over, you know, it takes a little bit of time. But, yeah, there are some sensitivity of those types of issues.

MR. ROTH-ROFFY: Okay. And do you find different customers have varying degrees of support for water chemistry program?

MR. DEHAAI: Yeah, definitely, definitely, different customers have varying degrees of support for water program, and even in the office level, onboard ship, different, different, even from ship to ship within the same customer, some ships are, you know, the superintendents are vary adamant about, you know, making sure that the ships follow, some of them are not as adamant. So, it varies from person to person, ship to ship.

MR. ROTH-ROFFY: Can you characterize your, generally speaking, about how the Norway and how they have been supporting Drew water chemistry program in relation to other customers?

MR. DEHAAI: In relation to other customers. I would say they are, you know, relatively a typical customer, typically, you know, with what we deal down here, typical cruise customer. Excuse me, I believe they understand the importance of the treatment

program. I think they appreciate the, the service and the technical expertise that we pass on as an organization. I think they understand our program and how it should be done relatively, I would say they are probably a typical as far as your interest and connectivity with our program, a typical customer.

MR. ROTH-ROFFY: Okay.

MR. KRISTOFERSON: This is Leif Kristoferson here. If I could make a comment here.

We find that with the, particularly with the Norway, the NCL technical operation was very much argument of using our type of treatment program over somebody else's due to the preceded experience that they have and also to the fact that they were very adamant of maintaining proper program on the Norway. This is as far as the superintendents or the technical people are concerned. And they were at times at odds with, with some of the other decision makers as far as the broad base supply arrangements are concerned.

MR. ROTH-ROFFY: And could you tell me who are you competitors down in this area, Leif, for chemical products?

MR. KRISTOFERSON: On the, on the, yeah, product, chemical products, there is one main competitors, an Norwegian company called UniTor(ph) and

between UniTor and this is typically worldwide as well, it is not only here but certainly we are familiar with it here, and they would be, I would think that as far as water treatment type, we are, have reliance here, but UniTor certainly is a large competitor.

MR. ROTH-ROFFY: Could you put some numbers on that in terms of market share, in Miami, primarily? Just roughly, I mean.

MR. KRISTOFERSON: For the Miami accounts, I would think that Drew probably has 30 percent, 35 percent of the market share, in the chemical field, they get a little bit more. And then UniTor have a portion and then a lot smaller, local suppliers that have the balance. NCL typically uses UniTor as their supplier with the exception of Norway.

MR. ROTH-ROFFY: Okay. Could you name a couple of those other larger companies that make up the balance of the market share?

MR. KRISTOFERSON: Competitors?

MR. ROTH-ROFFY: Correct.

MR. KRISTOFERSON: Well, you have a company called UseService, that is here. You have Nalco, I think Nalco is here. There may be some smaller, smaller companies, but, they are of not any, any consequences.

MR. ROTH-ROFFY: Okay. And just briefly, could you tell us about the, the structure of the organization where you fit into it, who are your bosses and that --

MR. KRISTOFERSON: I report to Patrick Lynch, which is recently the regional manager for North America. I report to Patrick Lynch and Patrick Lynch reports to Dan Carraher(ph) in Boonton.

MR. ROTH-ROFFY: Where is Mr. Lynch?

MR. KRISTOFERSON: Mr. Lynch is in Boonton.

MR. ROTH-ROFFY: Okay. Is that the same Lynch that you mentioned?

MR. MYER: Yes, it is. He has moved along in the organization, yes.

MR. ROTH-ROFFY: Okay. Peter, on the technical side, could you tell me where you fit in, in your supervisory --

MR. MYER: I report to Heiko, Heiko reports to Patrick Lynch.

MR. ROTH-ROFFY: So Patrick Lynch is in both chains of --

MR. MYER: He is at the service end sales.

MR. ROTH-ROFFY: How do you spell Heiko?

MR. MYER: H-E-I-K-O. He is kind of recent, when did he come?

MR. KRISTOFERSON: Heiko was with our organization in Europe and was transferred over here about, just about a year ago. So, he was transferred from Germany.

MR. ROSSEY: One final question, this should be. We have already talked about it with Leif, specifically, but I guess with the rest of the group, so, to everybody's knowledge here, am I correct in understanding that there was no lay up procedure program for the Norway?

MR. MUNT: Not specifically for the Norway, but, Drew Marine has lay up procedures.

UNIDENTIFIED SPEAKER: I think what your question is and correct me if I am wrong, were the boilers on the Norway ever laid out?

MR. ROSSEY: Correct.

UNIDENTIFIED SPEAKER: As far as you know.

MR. MUNT: As far I know, not, not as far as I know.

MR. ROTH-ROFFY: Okay.

MR. KRISTOFERSON: I think sometimes we use the word lay up, and lay up typically refers to a conscientious decision to lay up the boiler for a period of time. I am not sure if Norway or in that type of an operation, that anyone said, okay, we are

going to lay up boiler 22 for four weeks, or six weeks. If that is the case, then we will have recommendations, but they will take it off line, I think that is their expression. So, they would take it off line, if it, if it progresses for any period of time, in retrospect, it was up for four weeks, but, they have been intentionally looked at five, six days at a time.

MR. ROSSEY: So, if for some reason they had some that were off for a certain period of time, and they were going to alter the levels, say, where would that have been documented?

MR. KRISTOFERSON: I guess they would come to us and say, to the service engineer onboard, we have the intention to lay up the boiler for six weeks. We would note it on the service report, this is our recommended levels. They would typically not come to us and say we are going to take the boiler off line for a couple of days, so we wouldn't be part of that documentation.

MR. ROSSEY: Maybe let me rephrase the question. Without specifically coming to you, if they decided they were going to do lay up, and they adjust the chemicals, should that, would you expect that to be in the water chemistry log?

MR. DEHAAI: This is Jeremy, I would expect, I mean, you would see an elevated dosage and if, if the operators are going to do that, they will do an elevated hydrogen level for, for --

(Change of tape.)

MR. DEHAAI: -- recommended or they said it was going to two weeks, the dosages a little bit. You would typically see an increased dosage and they would typically test to see if they have the elevated hydrogen level. Yeah, that would be, you know, a normal expectation.

MR. ROSSEY: Let me elaborate on that one. When you say test, so they elevate the levels, and then you would test it just before it is shut off? Somebody would elevate it. How much time prior would you expect them to elevate the dosage and then when would you expect them to do the testing?

MR. DEHAAI: Again, it depends from your, it is an operational decision. They could start elevating it a day or two in advance, if they wanted to, or if they wanted to, they could start, you know, even slug dose it, or they could, you know, increase the dosage pump, you know, half a day before, six hours before, gets them in there and do a test. Again, and they may not even need to do the test, if they feel comfortable

that the levels there, again, it is, it is variable based on the comfort level of the operator. But, that is, you know, something that I would, if it were me doing that procedure, that is the why I would probably do it.

MR. ROTH-ROFFY: Okay. The time is now about 12:30 and I think we have run out of questions. And you have probably run out of patience with it. We very much appreciate your time sitting with us and explain how you to do business here. And that will conclude our interview down here at Drew Marine in Miami.

(Whereupon, at 12:30 p.m., the interview was concluded.)