NATIONAL TRANSPORTATION SAFETY BOARD

IN RE:	
THE EL FARO INCIDENT OFF THE COAST OF THE BAHAMAS ON OCTOBER 1, 2015	NTSB Accident No. DCA16MM001

Interview of: SURESH PISINI

12:38 P.M.
Monday,
February 1, 2016

American Bureau of Shipping Headquarters
Washington, D.C.

BEFORE:

ERIC STOLZENBERG, NTSB
MICHAEL KUCHARSKI, NTSB
JEFF STETTLER, USCG

This transcript was produced from audio provided by the National Transportation Safety Board.

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P-R-O-C-E-E-D-I-N-G-S

(12:38 p.m.)

MR. STOLZENBERG: Okay, Good afternoon. My name is Eric Stolzenberg.

MR. PISINI: Good afternoon, Eric. This is Suresh speaking here.

MR. STOLZENBERG: How do you do?

I'm with the National Transportation Safety Board. I'm a Senior Investigator. I'm here conducting interviews with regard to the sinking of the El Faro. And I am the lead investigator for the NTSB and the Naval Architecture Group.

We're at ABS Headquarters in Washington, D.C. It is, the time is approximately 12:38. And we also have on conference call a group at ABS in Houston.

We are interviewing Suresh. Suresh, could you state and spell your first and last name?

MR. PISINI: My first name is Suresh, S as in Sam-U as in umbrella-R as in rich-E as in echo-S as in Sam-H as in hippo. Suresh, and my last name is Pisini, P as in Peter-I as in indigo-S as in Sam-I as in indigo-N as in Nancy-I as in indigo. And I have the middle initial K.

MR. STOLZENBERG: Thank you. And what I'm going to do is go around the table here in Washington.

If you don't spell your names because we have them from the record earlier, but if you could just state your name and position and who you represent?

MR. O'MEARA: I'm Dennis O'Meara with TOTE Services.

MR. WHITE: Jerry White, outside counsel for ABS.

MR. GRUBER: Tom Gruber, ABS.

MR. STETTLER: Jeff Stettler, U.S. Coast Guard.

MR. STOLZENBERG: And in Houston other than Suresh?

MR. O'DONNELL: Louis O'Donnell, Assistant Chief Surveyor.

MR. GARZA: Erik Garza, Assistant General Counsel, ABS.

MR. STOLZENBERG: And on the phone?

MR. KUCHARSKI: Good afternoon again, everyone. Mike Kucharski, National Transportation Safety Board, Group Chairman, Nautical Operations.

MR. STOLZENBERG: Okay, thank you.

I just want to say, Mr. Pisini, NTSB is an independent federal agency charged with determining the probable cause of transportation accidents and promoting transportation safety. We are not part of

the Department of Transportation or the United States Coast Guard, and the NTSB has no regulatory or enforcement powers.

The purpose of this investigation is to increase safety, not to assign fault, blame, or liability. However, the NTSB cannot offer any guarantee of confidentiality or immunity from legal or license actions. We would like to record the interview to ensure an accurate record.

Do you have objection to this, Suresh? Do you object?

MR. PISINI: No, I have, I have no objection.

MR. STOLZENBERG: Thank you.

Additionally, a transcript or summary of this interview will go into the public docket. You will be given the opportunity to review the transcript and suggest corrections for accuracy prior to release.

Also, you can have one representative of your choice. The representative may not testify for the interviewee. And the representatives comments should be limited and objections are not ground for the NTSB to refrain from asking questions.

Do you have a representative of your choice present?

MR. PISINI: Yes, Jerry White.

MR. STOLZENBERG: Okay, thank you.

Additionally, is there anybody here, either in D.C. or in Houston or on the phone, that makes you uncomfortable, that you'd prefer not to have in the interview?

MR. PISINI: No.

MR. STOLZENBERG: Okay. And if you would, Suresh, answer all the questions to the best of your recollection or knowledge. Please don't guess at an answer; just let us know you don't, you don't know that.

If you don't understand a question, ask to have it repeated. And if you realize later that you misstated something or you need to modify a previous answer, it's okay to do so, and please, please do so.

MR. PISINI: Yes.

MR. STOLZENBERG: All right. Well, we'll get started then.

Suresh, what is your current job title and who is your employer?

MR. PISINI: My current job title is Manager, Structures and Statutes, in the Ship Engineering Department. And my employer is American Bureau of Shipping.

MR. STOLZENBERG: Okay. Would you give us a

brief history of your background and experience in the marine industry before you came to be Manager of Structures? And you can start right from college, say, or post-college.

MR. PISINI: Sure, Eric.

Yeah, I have an undergrad degree in mechanical engineering from India. After I, I graduated my undergrad in mechanical engineering I joined the Merchant Marine. So in all I have about 20-plus years of experience in the marine industry.

So I worked in the Merchant Marine for about 11 years. I started as a junior engineer and I rose to the rank of First Assistant Engineer. And I also have a Chief Engineer's license for motor, for motor vessels.

I quit the Merchant Marine in 2001 and I joined Keppel Shipyard in Singapore as a project manager, primarily looking after volume centers, being promoted to floating production storage and offloading units, that is FPSO. So I was involved in similar such workings while I was at Keppel Shipyard.

And I quit Keppel Shipyard in the year 2003 and I went to University of Michigan to go to a graduate program in naval architecture and marine engineering. I graduated in 2004, December, from

University of Michigan, and obtained a Master of Science Degree in -- from the Department of Naval Architecture and Marine Engineering.

Soon after my graduation I joined ABS as an engineer in the Structures team in the Ship Engineering Department in April of 2005.

In all, this is my 11th year at the American Bureau of Shipping. And all my experience is from the Structures Group in the Ship Engineering Department. I rose from the rank of engineer. And in the year 2013, I was promoted to the Manager of the Structures and Statutes Team.

So this is a brief background about me from the time I left college.

MR. STOLZENBERG: Thank you. That's an extensive background.

If we could focus on ABS now, what products does ABS provide typically for commercial ships with regard to structures, like strength?

MR. PISINI: So can you elaborate when you say "products"?

MR. WHITE: This is Mr. White talking.

Mr. Pisini, could you describe what services ABS' Structures Group provides to vessel owners?

MR. PISINI: Yeah. So we primarily do

planned review of the drawings that we receive. And we, we review the design for compliance, for compliance with the applicable rules. And there's a broad range of work we do here in the Structures Group.

So we start with the new construction projects we have. We work on the new construction projects. We work on the major modification projects. We work on modifications on the existing working projects.

So these are the major, major services we provide to our clients while we review the drawings for compliance with the applicable rules for the new construction projects, major modification projects, and the existing vessels. And in addition to those, we also do what is called cyber tools.

MR. STOLZENBERG: Okay. Do some of those products include scantling assessments, hull buckling, load line, deck loading, hull girder section modulus? Are those some of the reviews you do?

MR. PISINI: Yes. So, yeah, we do the longitudinal strength calculations. We do the hull vivisection modulus calculations. We do scantling reassessments. And we do all the structure related to the, related to the marine vessels, including all the equipment that is installed, including all the

foundations in way, foundations in way of the equipment that are installed on the vessel's house.

MR. STOLZENBERG: Okay. If you could, briefly, what's the process to do a compliance review for let's say the hull buckling and shear analysis? In other words, walk me through it briefly from the customer to the stamped drawings or a package.

MR. PISINI: Yeah, I can, I can walk you through.

Jerry, you wanted to say something?

MR. WHITE: No, go ahead. I -- if you understand the question, go ahead.

MR. PISINI: Yes. Yeah. Your question is related to, related to the buckling; is that right?

MR. WHITE: I think the question, Mr. Pisini, if you could just describe how ABS uses a hull girder section modulus and the relevance of buckling calculations, I think -- and the process in arriving at the results, that would be helpful.

MR. PISINI: Okay. So when, when we, when we do a new construction on a major modification project, the first drawings that we receive are the scantling plans and profile and the midship section. So for all the longitudinally continuous members we take into account all the longitudinally continuous members and

we verify the -- we calculate, we arrive with the section modulus of the midship section.

So we identify before we do the section modulus calculation, we identify the mid-body point forward and then we identify the structure within the mid-body point forward and outside of the mid-body point forward. And then we check whether all the structure, all the longitudinally continuous structure is continuous. And the scantlings are maintained within the mid-body point forward or not.

And once we ensure that, we request the owners what is the silhouette or bending moment that they expect from the anticipated loading conditions. So, and we also request a block coefficient from them.

So once we have all this information, then, then we evaluate. We build a section using our in-house software, a control section, and then we calculate the section modulus. We can -- And I have a minimum section modulus requirement. We make sure that the plan for the section that we chose meets the highest minimum criteria for the section modulus.

Once that, once that step is passed then we evaluate whether for the silhouette of bending moment support by the vessel owners, whether the section has, section within the mid-body point forward has

sufficient section modulus or not.

MR. WHITE: Mr. Pisini, could you just describe what a buckling calculation is and when it's performed?

MR. PISINI: Yeah. I'm, I'm getting there.

MR. WHITE: Okay.

MR. PISINI: Yeah. So after we calculate the section modulus, perform the section modulus calculations, then when we actually go and verify the scantlings of the vessel for all the longitudinal continuous members, primarily the plating and the thickness, we do a buckling check.

We do a buckling check based on the latest, latest rules. Our rules have clear guidelines to evaluate the buckling of longitudinally continuous members. So we have, we have guidelines. We have rule requirements for sampling the buckling of plating. We have rule requirements to calculate the buckling of thickness.

MR. STOLZENBERG: Thank you.

In the case of the El Faro specifically, was the typical process you just described, to your knowledge is that what occurred for the El Faro as well?

MR. WHITE: Are you looking -- this is Mr.

White -- are you looking to specify at the time of construction or at the time the mod -- made the major modification?

MR. STOLZENBERG: Good question. I would say at the 2005 to 2004, 2006 modification.

MR. PISINI: Okay. So from the time between 2005 till now, till 2016, modular modifications that took place, if I recollect correct, the only time we performed longitudinal test calculations and the buckling calculations was during one of the scantling reassessments.

And I don't have that information readily available in front of me but, but I can say that during that one time when the reassessment was performed, scantling reassessment was performed, we did perform the longitudinal calculations and the buckling check.

MR. STOLZENBERG: Okay, thank you.

MR. WHITE: You know just, Mr. --

MR. PISINI: And I just wanted to clarify, when I say the buckling check, I have to go back and verify in the calculations whether it was performed for all the plating or whether it was performed for specific members.

MR. WHITE: Mr. Pisini, do you know whether any buckling calculations would have been performed for

the major modification in 1993?

MR. PISINI: We have not been able to locate the calculations when the major modification was performed.

MR. WHITE: Okay.

MR. STOLZENBERG: This is Eric Stolzenberg, Mr. Pisini.

When you use the term -- not to get sidetracked -- but when you used the term "major modification" in 1993, was the same term "major modification" applied in 2004 to 2006 regarding structural assessments or was it different when the vessel was -- had containers added in 2004-2006?

MR. PISINI: The major modification determination is made by the, made by the flag administration. It's specifically, as far as I understand, it's specifically a flag administration term. So per the modifications that took place between 2005 and 2015, I did not see any correspondence from the flag administration which states, which states that either the reassessment that took place or the modifications that took place constitute a major modification.

MR. STOLZENBERG: And to be clear, that's different than in 1993, to your knowledge, when it,

when it was judged to be a major modification by the flag state?

MR. PISINI: The 1993 lengthening modification I, if I recollect correct, I saw a correspondence where a determination was made by the flag administration that this constitutes the major modification. But I don't have that information in front of me, but that is my recollection.

MR. STOLZENBERG: Okay, thank you. I don't want you to speak to something you're not sure of.

With regard to a buckling strength assessment, could you explain to me in your opinion what margin of safety or what that assessment is intended to provide to the vessel owner or the vessel? What is it protecting against?

MR. PISINI: Eric, will you repeat that question, please?

MR. STOLZENBERG: With regard to a hull strength and buckling assessment, what is the intended margin of safety that assessment is designed to protect the vessel from? In other words, is it to protect the vessel from hogging and sagging? Why is that buckling assessment done in practical terms?

MR. PISINI: Okay. So we, we perform basically the buckling is when we perform theoretical

calculations. It gives the buckling capacity of the, of the plate in an ideal elastic condition. So that's why, that's why we generally calculate our theoretical calculations, basically do the buckling capacity of an ideal elastic, of an ideal elastic plate.

So during the case when we perform the buckling calculations, what we primarily look at is whether the -- when those loading conditions are in hogging or in sagging. So if the vessel is in a hogging condition, the bottom is subjected to compression, so there is a possibility of buckling at the bottom plate when the vessel is in hogging condition.

And the vessel has sagging moments, so the deck will be in compression and there is a possibility of deck being subjected to, subjected to buckling.

So when we perform what -- when we perform the buckling calculations what we do is we calculate what is the working stress based on the maximum hogging moment and sagging moment. That is, that is the first step: we calculate what is the working stress.

After we calculate the working stress then we calculate what is the critical buckling stress based on the thickness of the -- depending upon if it is a -- whether we are, whether we are sampling the deck or the

bottom, based on the thicknesses, thickness of the bottom plate or the side ship, we can say the critical buckling stress.

So we see the working stress has to be under the critical buckling stress at all the times. So that is the criteria we use.

MR. STOLZENBERG: Okay, thank you.

MR. PISINI: So in our basis, the working stress should not exceed the critical buckling stress. The critical buckling stress is the limit.

MR. STOLZENBERG: Thank you.

I will pass it around the table now in this, this whole topic area.

MR. STETTLER: This is Jeff Stettler from the Coast Guard.

Suresh, I'm referring to a document on our screen here which you provided, ABS provided as part of their submittal. We actually got this quite a while ago. And the file name is elfarohgsmrev11-5. And the title on the first page is El Faro Hull Girder Section Modulus Analysis, Rev. 11-05.

And just to follow up on, on Mr. Stolzenberg's line of questioning, does this -- this out, the document outlined, I believe, what you do. And my understanding is you did this after the El Faro

sank as an internal measure to verify things. Is this what you, when you talk about what you go through for a hull girder section modulus and buckling analysis, is this the same process you go through?

MR. PISINI: That is. That is, that is --

MR. WHITE: This is Mr. White. Suresh, are you familiar with the document that Mr. Stettler is referring to?

MR. PISINI: Yes, I am familiar with the document.

MR. WHITE: Okay. Do you have it in front of you, Suresh?

MR. PISINI: I do not have the document in front of me.

MR. WHITE: Okay. Can you get access to it?

MR. PISINI: I can go up and bring it if you want me to.

MR. WHITE: If you have -- is that document available on the NTSB site, on the Excelsion? Mr. O'Donnell's there.

MR. STOLZENBERG: Right.

MR. WHITE: He might be able to show him the document.

MR. STOLZENBERG: Right. You've got it there.

MR. WHITE: Email it to me or Lou and Lou can --

MR. STETTLER: Well, Lou has it. Lou, this was in your original upload back in November.

MR. PISINI: I can give you the number.

MR. STETTLER: Yeah, the date on it is 11/12, the date on the file, I think, when you uploaded it to Excelion(phonetic).

MR. WHITE: Yeah, November 12th, 2015.

MR. STETTLER: Yeah.

MR. PISINI: Is it item number 2 or 3? Is that what you're referring to?

MR. STETTLER: I'm sorry, say again?

MR. PISINI: Is it item number 1, 3 -- sorry, is it item number 132 in the --

MR. O'DONNELL: 11-5 is the one you're looking for?

MR. PISINI: Yeah.

MR. STETTLER: Yes.

MR. O'DONNELL: I'm sorry, the internet is a little slow in the room right now. I'm trying to open the file.

MR. STETTLER: So and while he's doing that, Suresh, my question basically is, is the review that you conducted, which is documented in this, looks like

it's a 4-page document, does this encompass what you normally would do for a hull girder section modulus and buckling assessment in terms of planning review --

MR. PISINI: I just got it.

MR. STETTLER: -- or is this, is this a abbreviated version of that or is this -- does this reflect exactly, basically exactly what you would have done in 2007, for example, with you had referenced that you had done a hull girder section modulus and buckling assessment associated with the scantling reassessment?

MR. WHITE: This is Mr. White. I'm just referring to the first sentence that indicates a hull girder section modulus analysis was carried out and was found to be in compliance with both current 2015 rules and SBR 1975. Is your question based -- looking for the difference in those rules?

MR. STETTLER: No. No. My question is since you said you do not have access to the actual hull girder section modulus and buckling analysis you did to support the 2007-2008 scantling reassessment, I'm asking you is the process exactly the same? Have you done anything different here or is there more that you would have done in 2007-2008?

MR. WHITE: Is that the procedure you would have followed?

MR. STETTLER: Yes, right.

MR. PISINI: Yes, that is the procedure we generally follow when we do, when we do the buckling test.

MR. STETTLER: Okay.

MR. PISINI: But just going back to the 2010 scantling reassessment, that was we, when we said that we performed a buckling test, that was just a local, on a localized member.

MR. STETTLER: Okay.

MR. PISINI: But not, no, not globally yet. When I say "globally," it's not, we had not performed any buckling tests on the, I don't think we have performed any buckling tests on the longitudinally continuous members. It was the buckling was just performed for just limitedly local members.

MR. STETTLER: Okay, so -- Jeff Stettler again -- so I'm just I'm assuming then that you had also mentioned that this would have been done, the full whole girder section modulus calculation would have been done back when the vessel was lengthened in 1993, but you said you do not -- you cannot find that analysis. Is that correct?

MR. PISINI: That is. That is correct. I have not been able to find any calculations for the El

Faro when the vessel was built in 1975, and also when the vessel was lengthened in 1992-1993.

MR. STETTLER: Okay. And so this document, this form that we're looking at that I just mentioned, it is, is a -- to the best of your knowledge was the condition at the El Faro at the time of her sinking, and I understand the intent here was to demonstrate or through the calculation that the structure met the hull girder section modulus and buckling requirements?

MR. PISINI: That is. That is correct.

MR. STETTLER: Okay. I will have some other questions related to corrosion and some other things. But I think that's good for now.

MR. PISINI: Okay.

MR. STOLZENBERG: Suresh, this is Eric Stolzenberg with NTSB. In the document we've been discussing, the elfarohgsmrev11-5, is there a corrosion allowance in that assessment?

MR. PISINI: We performed a as-gauged section modulus calculation, we performed the longitudinal strength based on the as-gauged submission.

MR. STOLZENBERG: So --

MR. PISINI: Yeah, you were saying something?

MR. STOLZENBERG: Yes. So if in fact the vessel had plating or scantlings that had some degree

of wastage, would they be weaker or stronger? How would that affect this assessment?

MR. PISINI: So when we performed the longitudinal strength of the plates we, we performed the strength assessment for the intact section and for the as-gauged section. And when we performed the as-gauged, we took the gauged thicknesses from the gauging report and then we calculated the as-gauged section modulus. And we found that the vessel has sufficient longitudinal strength both in an intact condition and also in the as-gauged condition.

MR. STOLZENBERG: Thank you.

MR. STETTLER: And this is Jeff Stettler again. And that was gauged during the last dry docking period which was 2015?

PARTICIPANT: I'm sorry, I don't remember.

MR. WHITE: I think there were different sets of gaugings that were produced. This is Mr. White.

Suresh, are you familiar with what particular gaugings might have been used for any hull girder section modulus calculations and, if so, when?

MR. PISINI: Yes, I have the report in front of me. I mean when I say the report, the document, the 2011-05. So we used the gauging report they did 29th of January, 2011. The gauging report number is M as in

Mike, 1926092.

MR. STETTLER: Okay, and this is Jeff Stettler again. I know that, Lou O'Donnell, this is probably a question for you, that ABS has stated that they have uploaded those gauging reports. But I have been unable to find them on Excelion. Could I ask that ABS verify that and provide them to us?

MR. WHITE: You know, we sure, surely will. I thought they were produced.

MR. STETTLER: Okay. I have been unable to find them. So unless your --

MR. O'DONNELL: I'm not sure if the gaugings were out of the report. The report, the number that Suresh refers to was provided. I am not 100 percent sure, I'd have to grab my computer back from Suresh here to see if the gaugings were in that report. I'm not 100 percent sure they were loaded because they weren't requested.

MR. STETTLER: I, well that report, then I didn't find that either. So unless it's go another name.

MR. O'DONNELL: It, no, it's in there I can tell you. We're getting a little off track here. If you look on the ABS files.

MR. STOLZENBERG: This is Eric Stolzenberg at

NTSB. If we're going to discuss at length where --

MR. STETTLER: Yeah. Okay, I'll come back.

MR. STOLZENBERG: -- documents are, we can suggest for the record that we're going to request them and afterward make an action item.

MR. STETTLER: Okay.

MR. STOLZENBERG: But I'd prefer not to get in long discussions over --

MR. STETTLER: Okay, thank you.

MR. STOLZENBERG: -- what documents we do or don't have or where they may or may not be located on the record. Thanks.

MR. STETTLER: That's fine.

So, Suresh, just to follow up on that. So the analysis you did here on the -- in November, only included the gauged values, or the gauged thicknesses, you did not include any additional corrosion allowance; is that correct?

MR. PISINI: That's my understanding, yes.

MR. STETTLER: Okay. All right, thank you.

MR. STOLZENBERG: Okay, any questions in Houston from Lou regarding gauging, the whole section modulus report?

MR. O'DONNELL: Yes. This is Louis O'Donnell, Assistant Chief Surveyor, ABS.

Suresh, just a couple quick questions to clarify. You covered a lot there. With scantling reassessments, just to clarify, the owner can request either, either a local reassessment or a global reassessment depending on what the specific request is. For example, like we may just be concerned with main deck plating or internal underneath the main deck or side shell bottom logitudinals. But when we do that local assessment, is it true we would look at the logitudinals and the adjacent structure inlay or not?

MR. PISINI: If I understand your question correct, so you are asking whenever we get a request for a scantling reassessment --

MR. O'DONNELL: Yes, sir.

MR. PISINI: -- for this question let's say reassessment on the main deck.

MR. O'DONNELL: Yes.

MR. PISINI: Yes. So you are questioning when you do the reassessment do you also do a longitudinal assessment with the plating and thickness of that plate?

MR. O'DONNELL: Yes, that's my question.

MR. PISINI: Yes. So to answer your question, whenever we get a request for scantling reassessment from the owners, it is at the owners'

discretion, the extent of the reassessment is decided by the owners. And depending on the extent of the reassessment, if it is, if it is very localized then probably we decide it is not required to reassess the longitudinal strength of the vessel.

And if it is, if it is wide, and let's say to be extending in the area of the -- if the request for scantling reassessment extends to a wide area, then we will definitely perform a longitudinal strength assessment. And at that time we take the gauged thicknesses plus the thickness, the longitudinally continuous thickness that attach to the gauge, to the plates.

MR. O'DONNELL: Okay.

MR. PISINI: So then we get what is called a as-gauged section model.

MR. O'DONNELL: Okay. And one more question.

No, I'm sorry, I have no further questions. Thank you. Thank you, Suresh.

MR. PISINI: Thank you.

MR. STOLZENBERG: Mike Kucharski?

MR. KUCHARSKI: No questions. Thanks.

MR. STOLZENBERG: Okay. I'll move on.

Suresh, what structural criterion did El Faro have to meet, to your knowledge, when it sailed on

its final voyage or I guess after its last conversion?

MR. PISINI: So your question is related to after the conversion or related to the last voyage? I mean I think you are, you are asking both.

MR. STOLZENBERG: Let me, okay, I'll limit it to the last voyage.

MR. PISINI: Yes, for the last voyage the important thing to notice, what is the loading condition the vessel is sailing with. So for that particular loading condition, if the vessel has sufficient longitudinal strength, structurally the vessel is -- we can, we can say that the vessel has sufficient longitudinal strength to sail in that particular loading condition.

MR. STOLZENBERG: Okay. Let me rephrase it this way. What ABS steel rules and criteria was the vessel last subject to be assessed strength-wise to?

MR. PISINI: You mean your question is related to the scantling, what rules were used when we performed the scantling reassessment?

MR. STOLZENBERG: Yes. What rules were performed when you did the scantling reassessment post-sinking. But also what -- I'm assuming those would then be the applicable rules for the vessel.

MR. PISINI: Okay. So when post-sinking when

the report Rev. 11-5 was the report that was, that was done to verify the longitudinal -- we performed a longitudinal strength assessment for strengthening. At that time we used the cutting tools and we also used the rules which were used to build the vessel.

MR. STOLZENBERG: 1974?

MR. PISINI: I can check in the report.

MR. WHITE: It says 1975 in the report.

MR. STOLZENBERG: Okay.

MR. PISINI: '75 in the report, yes.

MR. O'DONNELL: That's right.

MR. PISINI: Yes. We performed it to steel version rules 2015 and we also performed to the steel version rules 1975.

MR. STOLZENBERG: So my question then would be when it sailed, what were the rules that it would have been required to meet? And I don't believe those would be the 2015 rules. I'm assuming they would be somewhere around 2004, 2005.

MR. WHITE: If I may.

MR. PISINI: No, the vessel has, the vessel has to meet the rules when the year was built, the rules they had when the vessel was built. Those will be the applicable rules.

MR. WHITE: Mr. Pisini, could you explain for

scantling reassessments what rules ABS would use?

MR. PISINI: Yes. Generally because the scantling reassessment was requested by -- at the discretion of the vessel owners, we then when we performed the scantling reassessment we used, we used the year in which the request was made. To give you an example, if a scantling, a request for a scantling reassessment comes to me in 2005 we perform the reassessment to 2005 rules.

MR. STOLZENBERG: This is Eric Stolzenberg. Thank you. Understood.

So that would mean through the life of the El Faro a scantling reassessment had never been requested by an owner? Is that -- am I correct in saying that? If the rules that applied were 1974, why, why weren't rules applied after 1974?

And I can rephrase the question if need be.

MR. WHITE: I think your first question was whether or not any structural reassessments were given to the vessel?

MR. STOLZENBERG: Yes.

MR. WHITE: Mr. Pisini, can you describe for Mr. Stolzenberg any structural reassessments that were given to the El Faro?

MR. PISINI: Yes, I will.

MR. WHITE: Okay.

MR. PISINI: There are between 2005 and 2009 there were six scantling reassessments performed on this vessel. And in all, in all the cases the latest rules were used to perform the scantling reassessment.

MR. WHITE: Okay. And what did they consist of generally, what reassessments were given, if you know?

MR. PISINI: Yeah. Yes, I don't have the documents in front of me but I'm just speaking out of my memory. So there were three reassessments performed in the after design at different locations, and there was one reassessment on the main deck. There was one reassessment on the second and the third deck. There was one reassessment on the side framing in somewhere in the forward area.

I am not sure if I have the exact same numbers or not, but if I have the documents in front of me I can give you the exact locations.

MR. STOLZENBERG: And this is Eric Stolzenberg.

But no global strength reassessment was performed?

MR. PISINI: There was one, there was one time when we got a request for scantling reassessment

of the main deck. So at that time the longitudinal strength assessment was performed.

MR. WHITE: Mr. Pisini, as far as the procedure followed for reassessment, is it accurate to say that the owner submits the documentation requesting a reassessment?

MR. PISINI: That is correct.

MR. WHITE: Okay. And so the reassessment would be based on scantlings in a particular area; correct?

MR. PISINI: Correct.

MR. WHITE: Okay. And depending on the area, that may involve different calculations that need to be submitted by the owner; correct?

MR. PISINI: Correct.

MR. STOLZENBERG: Okay, thank you.

MR. STETTLER: Jeff Stettler here.

Just to follow up with Mr. Stolzenberg's question, as a result of the 1993 major modification where the vessel was lengthened, it seemed to me that a more recent ABS rules or set of requirements would be used at that point rather than the 1975, unless there weren't any more recent than that. Is that correct? And were there any in between there that were applicable?

MR. WHITE: This is Mr. White.

Just to clarify, your question is with regard to scantlings?

MR. STETTLER: Well, right.

MR. WHITE: Okay. All right.

MR. STETTLER: Basically the 1975 rules, --

MR. WHITE: Okay.

MR. STETTLER: -- was there an intermediate there since the major modification occurred in 1993, was there a 1988 set of rules or something that would have applied to that?

MR. WHITE: Mr. Pisini, could you describe for Mr. Stettler how ABS determines which rules would apply for a reassessment or for the major modification in 1993?

MR. PISINI: Yeah, according to our practices, if a major modification determination has been made, so the applicable rules can be the latest rules or it can be the rules when the, when the vessel was built.

MR. WHITE: And is that within ABS' discretion to apply either set of rules?

MR. PISINI: I think -- I don't have the proper instruction in front of me -- I think at the discretion of the -- if the vessel safety is not, is

not affected, based on the latest rules, then the year when it was built those rules can be used. And that determination is made by the assistant chief engineer of ABS.

MR. O'DONNELL: This is Louis O'Donnell. Mr. White, Mr. Stolzenberg, if I may redirect the question a little bit.

So, Suresh, maybe to try to clarify, at the time of the major modification, based upon the determination we would have received from the flag, rule sets from the years, original date of build and the year or the time of the major modification could certain rule sets apply to different areas? Where if it was determined there hadn't been a change in the structural portion from the date of build rule to the rule at the date of the modification, might we through our process be allowed to use the rules back at the date, vessel's date of build for that area, whereas maybe some things that are affected we might have to use the latest rules?

MR. PISINI: I have not been able to find any correspondence which actually state which rules were used at the time of, at the time of the vessel's lengthening back in 1992-93.

And does that answer your question, Lou?

MR. O'DONNELL: Yes. Yes.

One further question with the, I'm sorry, coming back to the scantling reassessment. Scantling reassessments are not a rule requirement, it's -- or required. That is something that's specifically requested by the operator or the owner's representative; correct?

MR. PISINI: That's correct.

MR. O'DONNELL: Okay, thank you.

No further questions.

MR. PISINI: Thank you.

MR. STETTLER: I have a follow-up question about reassessments. And, Lou, you just made me think about this. Is what is the benefit to the owner of requesting a scantling reassessment? Why would they ask for a scantling reassessment? What do they get out of it?

MR. O'DONNELL: Are you -- Excuse me, Mr. Stettler, are you asking that question to me or Mr. Pisini?

MR. STETTLER: Mr. Pisini, why do the owners ask for a scantling reassessment?

MR. PISINI: Yeah. The primary reason why the owner requests for a scantling reassessment is they want to take and validate of the excesses, if there was

any built into the platings or the scantlings at the time of the -- at the time the vessel was built. In other words, at the minimum the vessel has to be built to the rule-required thicknesses and the section model (unintelligible) of the local scantling.

But at times the shipyard, based on the relevance of the material, they might use higher scantling. So the owners generally they do a scantling reassessment to take advantage of those.

MR. STETTLER: Okay, so --

MR. PISINI: They can (unintelligible).

MR. STETTLER: So are, just are you saying basically if they use thicker plating in a particular area they can take advantage of that, so maybe the original drawings did not include, you know, maybe 3/4ths of an inch but if they put in 1 inch they could take advantage of that? Is that what you're saying?

MR. PISINI: That's exactly right.

MR. STETTLER: Okay, thank you.

MR. O'DONNELL: Mr. O'Donnell or Louis O'Donnell here in Houston again.

Suresh, one quick question and trying to close out reassessments and I'll come back to it. Could it possibly be true that the required scantlings in 1974 may have been more robust than scantlings

required in '92, '96, as of today, based on technology over the years with ship construction? And I mean and this is a very general question, the implementations of Safe Hull and other such programs as that, you know, assessing, you know, longitudinal and structural strength at new construction, could it be very likely in '74 the scantlings required would have been heavier than those of today?

MR. PISINI: I think they are different. In some locations they will be heavier. In some, in some locations they will be lower. Yeah, because I expect now they at most, at most they are using more sophisticated tools. So really then they have to perform -- whenever we get this kind of requests from the clients we basically perform a gap analysis, and then we come up with, we generally don't come up with a really straight answer. But in some cases we see that some scantlings are lower and in some cases we see that the scantling requirements are higher.

I cannot pinpoint and say that, okay, this year the requirements are higher and this year the requirements are lower.

MR. O'DONNELL: Also, the advent of further use of higher strength steel that we've had scantlings reduction?

MR. PISINI: That is correct. Correct. Correct, yes.

MR. O'DONNELL: And back in '74, high tensile steel wasn't used as much as it is today?

MR. PISINI: AS it is used today, yes. Correct.

MR. O'DONNELL: All right, thank you very much. No further questions.

MR. PISINI: Thanks, Lou.

MR. STETTLER: Jeff Stettler again.

Just to -- the bottom line is that your hull girder section modules and buckling assessments that you do utilize the as-gauged thicknesses. So it sounds to me like the reassessment really has nothing to do with the actual analysis that you do. You're still using the actual thicknesses. Is that correct? Or is there a different connect -- is there another connection to those two?

MR. PISINI: I think, Jeff, I may have to ask you to repeat that question again.

MR. STETTLER: Okay.

MR. WHITE: I think, Mr. Pisini, I think Mr. Stettler's asking are the same calculations for a hull girder section modulus or buckling, are those the same calculations that would be submitted by the owner for a

reassessment?

MR. PISINI: Is that what, is that the question, Jeff? Is that?

MR. STETTLER: Well, I'm actually interested in that question as well. But, you know, my question was slightly different than that.

Would you like to answer Mr. White's question? It's an interesting question.

MR. PISINI: Yeah, okay. To answer to Mr. White, to clarify Mr. White's question, well, whenever we receive a request for a scantling reassessment, depending upon the extent of the analysis, if the client submits the calculations to us, at times we will not receive a calculation. So we perform either based on whether they submit the calculations to us or they do not submit the calculations, we do our in-house calculations to verify that the scantlings meet the, meet the requirements.

I do not know if that answers one of your questions, but this is, this is the response to Mr. White's question.

MR. STETTLER: The document that we were looking at a few minutes ago, the hull girder section modulus document, utilized the gauged thicknesses.

MR. PISINI: Uh-huh.

MR. STETTLER: So the -- maybe I misunderstood, but the reassessment is to be able to take credit for actual gauged thicknesses that may be thicker than the requirements. So to me it sounds like your whole girder section modulus analysis that you are doing incorporates the actual thicknesses.

MR. WHITE: The actual gauged thicknesses.

MR. STETTLER: The actual gauged thicknesses. So they're, they're not necessarily directly correlated or they don't have to be explicitly linked because you're gauging them.

MR. PISINI: Yeah, that is, that is correct. Whenever we calculate and went with the as-gauged section modulus, we actually take the gauged thicknesses.

MR. STETTLER: All right. Okay.

MR. PISINI: Does that answer your question, Jeff?

MR. STETTLER: Yes, I believe it does. Thank you, Suresh.

MR. STOLZENBERG: This is Eric Stolzenberg.

Since we're talking about -- and one housekeeping item, which is Dennis O'Meara has left the interview and he won't be returning. Just as note, to be noted.

Do you recall the results of the last ultrasonic plate survey for the El Faro?

MR. PISINI: Okay, I had a cursory look at the gauging report that we used to test from the as-gauged section modulus calculations as developed in the report Rev. 11-5.

MR. STOLZENBERG: Okay.

MR. PISINI: I don't have that document in front of me. But the average weight figures are somewhere in the range 3 to 4 short tons.

MR. STOLZENBERG: Yeah.

MR. PISINI: That is somewhere in that range, 3 to 4 short tons there.

MR. STOLZENBERG: In your experience is that typical for a vessel this age?

MR. PISINI: I've seen one or two gauging reports to answer that question. But I think in my opinion, I mean that sounds to me very reasonable. That appears to be reasonable.

MR. STOLZENBERG: Okay, thank you.

Was there anything that you recall from your gleaning of the report that stood out as an issue or a problem?

MR. PISINI: No.

MR. STOLZENBERG: All right, thank you.

MR. PISINI: When you say the report, it's the gauging report; right?

MR. STOLZENBERG: Yes, sir.

MR. PISINI: No, nothing, nothing stood out.

MR. STOLZENBERG: Okay, any other questions from my colleagues regarding a gauging report? On the phone?

MR. KUCHARSKI: No, thank you.

MR. STOLZENBERG: Okay. I'll move on.

MR. WHITE: Mr. O'Donnell, do you have any?

MR. O'DONNELL: No further questions. Thank you.

MR. STOLZENBERG: Suresh.

MR. PISINI: Yes?

MR. STOLZENBERG: Some times in structural analyses or assessments is information from sister vessels with similar hulls and scantlings allowed to be used in an assessment?

MR. PISINI: Uh-huh.

MR. STOLZENBERG: Could you repeat your answer, please?

MR. WHITE: Is the question whether for reassessments whether the information from other vessels may be used?

MR. STOLZENBERG: My question is for even in

initial new build assessment if four sister vessels were built with the same hulls, so for initial assessments and reassessments can data from sister vessels with similar scantlings and construction be used?

MR. PISINI: Yes, it can be used. But before we do that we have -- we make sure that the vessels are true sisters. And we also make sure that all the scantlings are the same. Then we can, then we can consider conservative analysis.

MR. STOLZENBERG: Okay. And specifically for the El Faro, was there any information in the reassessments or any reassessments for structure strength was any information from sister vessels used in those assessments?

MR. PISINI: One of the reassessments that we have found on the vessel Great Land, I do not recall the hull number for that vessel but the name of the vessel is Great Land. So the reassessment that was performed on the Great Land was extended to El Faro.

MR. STOLZENBERG: And what was the reassessment? In other words was it hull girder section modulus? Was it a buckling of the local scantling? What was the nature of the reassessment?

MR. PISINI: Yeah. The nature of the

reassessment was related to the corrosion evaluated at various locations.

MR. WHITE: At what locations?

MR. PISINI: At various locations.

MR. WHITE: Okay.

PARTICIPANT: Various.

MR. PISINI: Yeah.

MR. STOLZENBERG: Okay. That's all I have on sister vessels. I'll pass it to Jeff Stettler.

MR. STETTLER: This is Jeff Stettler. And forgive me, I'm actually reading a question from somebody else who, someone who couldn't be here today. And it involves a buckling assessment on the Lurline in 2008 which -- and so the question of sister vessel actually is applicable. But and I'll just read the question and then perhaps we could work our way through it.

Regarding buckling it says, if buckling was a concern on the Lurline in 2008, requiring structural modification to add bottom longitudinals, why would it note apply to other sister vessels reviewed by ABS?

And then it goes on to ask, was this sister vessel -- or, excuse me -- was this sister relationship looked at at any point in the past or more recently? Based on the buckling formulas used by Herbert

Engineering Corporation and its required variables, what is different about the El Faro and the Lurline that would have provided a different analysis? Basically, was the comparison looked at and did you agree with the Lurline analysis? And, if so, why were changes made to the Lurline?

So basically, I guess, the relationship between that analysis and they actually added some stiffeners, as I recall, to the Lurline. Was there a difference? And why would that not have applied to the El Faro?

MR. PISINI: Yeah. To start with, Lurline is not a sister to, sister to El Faro. Lurline is longer than, longer than El Faro is. So it is not, it is not a true picture. And El Faro in its lifetime, to my knowledge there was no report of any failure, any buckling failure on the El Faro.

MR. WHITE: Mr. Pisini, do you know the difference in the size of the plug that was put in the Lurline as compared to the El Faro?

MR. PISINI: Yes. On the, on the El Faro the size of the plug is about 90.9 inches, whereas the size of the plug on the Lurline is about 126 inch.

PARTICIPANT: One question here from Houston. Mr. Pisini, is it true that when Lurline was modified

from her original state she -- from forward of the house she was made a cellular container vessel, whereas El Faro maintained her RO/RO characteristics from the second deck below? Is that true? Is that one of the reasons they would not be considered sisters?

MR. PISINI: I'm, I'm not sure.

PARTICIPANT: Okay.

MR. PISINI: I'm not sure of that on the Lurline.

PARTICIPANT: Okay, thank you.

MR. STETTLER: Yeah, I think one of the things that's happening, Suresh, just so you're aware, there are some conflicting documentation that refers to the Lurline and the El Faro, or the Northern Lights at the time, as sister vessels. But maybe because of modifications that occurred to those vessels, as you stated, they're not so much sister vessels. Certainly the lengths are different.

I've seen general arrangements, and that makes sense to me, but.

So just to follow up on that to confirm with you, as far as ABS is concerned, for sister vessel purposes the El Yunque and the El Morro would have been considered sister vessels?

MR. PISINI: Yes. From my understanding,

yes.

MR. STOLZENBERG: This is Eric Stolzenberg, NTSB.

Suresh, I think in some of our research in preparation for today's interview I recalled that the El Faro had 0.84 inch bottom plate and the El Yunque had 0.93 inch bottom plate. Do you have knowledge of the bottom plate thickness on the two vessels?

MR. PISINI: Yes. That is correct, yes.

MR. STOLZENBERG: So my next --

MR. PISINI: El Faro has a bottom plate thickness of .84 inches. But El Yunque I'm not sure if it is outside of the plug they have the .96 or not. But we think in way of the plug I think they have the, that vessel has .96 inches.

MR. STOLZENBERG: So my follow-on question would be how are they sister vessels structurally then? Or what delineates, what -- how can they be sister vessels with the slightly different thick bottom plates structurally?

MR. PISINI: I, I have to look into that.

MR. STOLZENBERG: Okay.

MR. PISINI: I don't, I don't --

MR. STOLZENBERG: And what would be the effect -- and I guess if we haven't done, if there has

been no assessment, I understand, so this might be an opinion question, Suresh -- what's the effect on the buckling and strength analysis if one plate is 10, 15 percent thicker than the plate on another vessel?

MR. PISINI: Yeah, the plate because that, the higher thickness and depending upon how the float and the girders are arranged on the bottom, if it's -- let's say for discussion purposes that the only difference is the thickness of the plating and all the other alignments are the same, the resistance to buckling will be, will be much greater on a vessel that has a greater thickness.

MR. STOLZENBERG: Okay, thank you.

MR. O'DONNELL: One question from Houston on the sister vessel, line of questioning.

Suresh, could it be true the vessels could remain sisters and the possibility may be at time of construction or time of build or modification that if the size for the original vessel or the originally approved plans for a set of sisters was, just say we'll call them ship A, B and C, if A and B were built with let's say 3/4 inch plate and C came to built, three-quarter, 3/4 inch plate wasn't available, we would not be allowed to go to a lesser scantling. But if the shipyard proposed to use a greater scantling above 3/4,

they would be allowed to do that and we could still consider those vessels sisters just for that one change; correct?

MR. PISINI: Correct. Yes.

MR. O'DONNELL: Okay, thank you. No further questions.

MR. STOLZENBERG: This is Eric Stolzenberg, NTSB. Thank you. Thank you for the question, Lou.

So if I understand it correctly, then what would occur is the strength of the vessel is based off the lower thickness plate and so the greater thickness plate calculations on it could be changed because it's in excess of the original calculations and there's no way to meet them? I pose that question to Suresh.

MR. PISINI: So if I understand your question right, you are asking that the vessel with the greater thickness will have a higher -- will have a higher section modulus; is that right? Is that, so is that what your question is?

MR. STOLZENBERG: Yes. I just want to make sure I understand your answer to Lou's question which is, if I understand it then, you can, the vessel with the greater thickness plate doesn't have to go through another assessment because the vessel with the lower plate, the requirement is designed that it meets it

with a lower plate, so the vessel with the greater plate doesn't have to go through another set of calculations?

MR. PISINI: Yeah, we -- yeah, we have that from the longitudinal strength calculations for the vessel with the lower thickness. And so whatever they used at the time of the construction, the top thickness, for the top thickness of the vessels, if they have used larger thickness plate, and it is the owner's call to equip an extension of the (unintelligible) for the strength. Or they could also, they could perform a reassessment based on the fact that they have a higher thickness plate. It is strictly the owner's call.

But if generally the dimensions on the vessel are the same and if all the alignments on the vessel are the same, we can consider the vessels are sisters, so the scantlings are also the same. At the minimum, I mean in this case we see that the El Yunque has a greater thickness at the bottom. But if all the other thicknesses are the -- if all the other scantlings are the same, then we can still say that El Faro and El Yunque are sisters. But the strength will be limited to what is there on El Faro.

MR. STOLZENBERG: Thank you.

MR. STETTLER: Jeff Stettler. So just the converse of that is then that you wouldn't use the El Yunque analysis as a basis for something on -- you wouldn't extend an El Yunque analysis to the El Faro?

MR. PISINI: That is, that is correct, yes.

MR. STETTLER: Okay. Thank you.

MR. PISINI: Provided that the strength assessment was performed for the El Yunque with a greater thickness.

MR. O'DONNELL: Louis O'Donnell in Houston. Clarification.

So if we had areas, let's say side shell bottom deck, if one vessel had a different scantling due to a substitution in construction -- say the bottom plate was thicker but it had the same exact size internally and floors and things like that -- for the bottom let's say, on the bottom plate we could not use an assessment for that vessel for the other vessels and kind of vice versa, we couldn't use an assessment, say, from El Faro to El Yunque and backwards?

Do you understand what I'm saying? The side shell and deck may be the same if all its scantlings are the same. But if we had one of the vessels where the bottom plate was different but the internals were the same, we would still, we would have to do a

different calculation for that portion for reassessment; correct?

MR. STETTLER: Right. That was, that was my question. Thank you.

MR. O'DONNELL: That's what I'm trying to clarify.

MR. PISINI: If it is requested, yes.

MR. O'DONNELL: Yes. Yes, if it's a request. Right.

MR. PISINI: If it is requested.

MR. O'DONNELL: Yes, okay. Thanks.

But for the remain -- we could apply everything else if it was the same?

MR. PISINI: Yes.

MR. O'DONNELL: Okay, thank you. No further questions.

MR. PISINI: Thanks, Lou.

MR. STOLZENBERG: Mike on the phone, do you have questions along these plate thickness questions?

MR. KUCHARSKI: No, thank you.

MR. STOLZENBERG: Okay, Suresh, this is Eric Stolzenberg again, NTSB.

Earlier in the investigation the El Faro document was provided showing an open statutory deficiency -- excuse me, not -- let me restate my

question.

Earlier in this El Faro investigation a document that had an open statutory deficiency, comment 901, on 21 July, 2015, recommended the loading manual for the El Faro be updated to reflect a still water bending moment of 500,000 long tons foot hogging and 388,000 sagging. Are you familiar with this deficiency?

MR. PISINI: Yeah, I'm familiar with that comment. Yeah.

MR. STOLZENBERG: What I'd like to ask now is we'd heard some talk through the investigation that this was an error of a surveyor at the time. So my question is, what has been the ABS response to this documentation? And what's been done up to date?

MR. PISINI: Okay. So to start with, the vessel based on the year it was built it's not required to have a loading manual or the loading program. So the engineer that was performing the reassessment I think back in 2005-2006, I am not sure which year was that. So as a general practice, he's opened the -- he's opened the deficiency comment that he could have done for any other vessel, assuming that this vessel has a loading manual and a loading program.

But that should not have been, that should

not have been raised if someone has dug into the details and found out at that time that the vessel entirely did not require a loading manual and a loading program.

So in other words, I mean the comment, the comment is not applicable to El Faro.

Does that answer your question, Eric?

MR. STOLZENBERG: Answers the first part. So ABS has determined at this point that the comment was incorrect based on the fact that the El Faro did not require loading manual or a loading instrument?

MR. PISINI: Loading program or loading instrument; both are the same, yes.

MR. STOLZENBERG: Okay. And so my secondary part of the question is, how has that comment been closed or what's been done to address it?

MR. PISINI: So we had two periods, one from the -- back in, requesting to look into the comments back in 2014. So we basically went back to the owners, or went back to the (unintelligible) saying that we have not been able to look at the loading manual. And then again in July of 2014 we got an email from the designer, that is Herbert Engineering, explaining this is the main thing, that this vessel is not required to have a loading manual. Yeah? So this comment has to

be closed.

So at that time it was assigned to an engineer to take action, to take action on the comment. But it was left like that.

So that's the, that is the last correspondence we had on the comment. But the fourth, I think fourth incident the comment has been closed. But since 2014 till the incident happened, the comment was still open.

MR. STOLZENBERG: Okay, thank you.

And the comment regarding the bending moment, so those bending moments, regardless of whether it needed a loading manual or a loading instrument, is the El Faro exceeding its bending moments in the hogging or sagging condition?

MR. PISINI: No.

MR. STOLZENBERG: Okay.

MR. PISINI: So the lesson was based on the loading conditions that we have seen, the vessel is always in a hogging condition. And we, we also had a scantling plan drawing that was approved after the vessel's lengthening where it states clearly that the maximum hogging moment is 500,000 long tons.

So in other words, when the vessel was lengthened it was approved for a maximum hogging

bending moment of 500,000. And the last loading condition that we have seen on the El Faro has a much less, much lower hogging bending moment than 500,000.

MR. STOLZENBERG: And is that bending moment the 280,000 from the HGSM Rev. 11-5?

MR. PISINI: That is correct.

MR. STOLZENBERG: Thank you.

MR. STETTLER: This is Jeff Stettler. I'd like to -- actually that was a good segue into one of the topics I'd like to discuss which is the loading manual and potential use of a loading instrument.

This morning with Tom Gruber we discussed The Trim and Stability book and stability instruments. And the way I understood this is that -- and I wasn't as familiar with loading manuals or requirements for loading manuals. It sounds like that's a bit of a, it's a complementary tool for this, for the vessel, the master I would think, to assess the bending moments on the vessel in various loading conditions. Is that correct, a reasonable statement?

MR. PISINI: Where there's conditions using the loading program? Is that what you're asking?

MR. STETTLER: Or the loading manual without a loading program. The loading manual, the purpose of the loading manual -- actually let me rephrase.

Could you please explain or state what the purp -- what a loading manual is and its purpose please.

MR. PISINI: Yeah. The purpose of the loading manual is it provides a guidance to the master of the vessel to make sure that the strength limits are not exceeded when in any of the loading conditions where the master intends to load, load the vessel.

MR. STETTLER: Okay.

MR. PISINI: So that is the, that is the primary purpose of the loading manual.

MR. STETTLER: Okay. So it's a similar function to this Trim and Stability book which for GM or stability?

MR. PISINI: Yes, exactly right.

MR. STETTLER: Correct, okay.

So you had just stated that for the El Faro a loading manual, and a loading instrument by extension, was not required based on the year it was built.

MR. PISINI: Yes.

MR. STETTLER: With the major modification that occurred in 1993, should that have changed whether or not -- or would that, might that have changed whether or not a loading manual was required?

MR. WHITE: Mr. Pisini, would a loading manual be required as a result of the major modification in 1993?

MR. PISINI: No.

MR. STETTLER: Okay. Can you say why not?

MR. PISINI: Yeah. That, that's because the applicable rules at the time of the modifications was the year that the vessel was built. So the same requirements, same requirements will apply.

MR. STETTLER: Okay. So, so despite the lengthening and the later conversion to a RO/RO container vessel, the requirement whether or not it was required to carry a loading manual goes all the way back to its date of construction; is that correct?

MR. PISINI: That is correct.

MR. STETTLER: Okay. So, so the El Faro was not required to carry a loading manual nor a loading instrument. How would the vessel master know whether or not he was exceeding the allowing bending moment?

MR. PISINI: Yeah. Yeah, the vessel is based on the year the vessel was built. The vessel is required to have longitudinal strength calculations based on the anticipated loading conditions. So in other words, the designer has to develop some loading conditions, some anticipated loading conditions which

are similar to what is there in the loading manual of what we have in the character on the vessel which are built now. So that can be used, those can be used as a guidance.

But in this case for the El Faro, we have, we have our records which say that we have the loading conditions developed but we are not sure whether those conditions are applicable to El Faro are not. But the vessel is supposed to have at the time based on year it was built, the vessel is supposed to have anticipated loading conditions showing the still water bending moments and shear forces for those anticipated conditions.

So the master of the vessel can use those as guidance.

MR. STETTLER: But if the vessel was modified, it was lengthened and then converted to a container vessel, was that redone? Were all those loading conditions reevaluated once it was converted to a container vessel?

MR. PISINI: I, I did not find any loading conditions from our records after the vessel was lengthened.

MR. STETTLER: Okay. So I just, I get back to the question of a loading manual, you know, from a

practical purpose, from a practical perspective the vessel actually has CargoMax installed, or El Faro -- and this is true of El Yunque I suppose as well -- they've got a loading computer on the vessel. However, that loading computer is only approved as a stability instrument, not as a loading instrument.

So I would think technically they don't have any way to confirm what their bending moments are because they don't have any tools that are approved that allow them to do that. Is that a fair statement?

MR. PISINI: No, that is not true. So the vessel will have, the master of the vessel will have the anticipate -- as I said, the rules require the vessel to have anticipated loading conditions to be placed, to be developed with shear forces and bending moments along the length of the vessel. So he can use that guidance for any, for any loading condition that he plans, that he intends to load and evaluate the still water bending moments and the shear forces.

MR. STETTLER: What is the name of that document that the master has?

MR. PISINI: It doesn't -- it is basically I don't, I don't know whether there's -- what name they call it. It is not called a loading manual. But the vessel is supposed to have some anticipated loading

conditions showing the strength information, so which is similar to the loading manual. Maybe it's called longitudinal strength calculations. I'm not sure.

MR. STETTLER: Is that approved by ABS?

MR. PISINI: No. Because the, because those are calculations and those will generally be retained for our records.

MR. STOLZENBERG: Suresh, this is Eric Stolzenberg, NTSB.

What loading profile was used in the post-accident hull girder strength section modulus Rev. 11-5? In other words, what did ABS apply to come up with those hogging and sagging conditions?

MR. PISINI: Yeah. Yeah, we have the maximum still water bending moments from the drawings, the 500,000 long tons for the hogging conditions. And we have the 388,000 for the sagging conditions. So we used those values and we picked, picked out two sections within the mid-body point forward. We calculated the section modulus. And then we also calculated the available still water bending moment based on the section properties. And we, and then we compared whether these maximums can be achieved or not.

So that is, that is how we approached the 11-5 report.

Does that answer your question, Eric?

MR. STOLZENBERG: Yes. And I think I'm just confused because I'm not sure where people are placing weights on the vessel for that, where the weights are coming from. You know, where the load curve is coming from.

But this is not my area of expertise. I would have to investigate more.

MR. STETTLER: Suresh, this is Jeff Stettler again.

I think the confusion that I'm having, I'm still confused on the point of I understand where these design bending moments come from, from the rules based on vessel parameters, but I'm still confused at whether or not the vessel master has an approved way to assess the actual bending moments on the vessel.

MR. PISINI: As an approved weight.

MR. STETTLER: I mean how do they do it? I mean you said they have some tool. I don't believe we've come across that on the El Faro. I don't know what that tool is. But, you know, how would the vessel master -- so, for example, if they were really dumb and they put all their, they started loading containers in the bow and the stern and didn't put any amidships, they could easily on the El Faro exceed the allowable

hogging bending moment. If they loaded the, you know --

So what keeps him from doing that? What guidance or what requirements does he have? He doesn't have a loading manual.

MR. PISINI: Yeah, but --

MR. STETTLER: He does have CargoMax, but CargoMax isn't approved to do that. So I'm just asking what, was there something that's missing?

MR. PISINI: The CargoMax is not approved to perform strength calculations; you are correct.

MR. STETTLER: Yeah.

MR. PISINI: And then the vessel did not have a loading manual.

But the vessel should have copies of the anticipated loading conditions that I was talking earlier on both the vessels. He can use that as a guidance to perform, to perform his calculations for every loading operation that he performs. So that can be used as a guidance.

And at the same time, he also knows what are the permissible sagging and hogging moments. He knows what is the maximum hogging moment and he also knows what is the maximum sagging moment. So he has to, when he is loading he has to ensure that those moments are

not exceeded. So he can use the methodology that was used in those anticipated loading conditions that I was talking about earlier.

MR. O'DONNELL: Suresh, to maybe clarify here, and Tom can help me out a little bit as well. Would not these conditions be part of The Trim and Stability booklet, these approved conditions? Like pre-approved conditions, would they not be part of what's in The Trim and Stability booklet?

MR. PISINI: In The Trim and Stability booklet they have conditions only for stability. They would not present the strength information in there.

MR. O'DONNELL: Okay. Okay.

MR. GRUBER: Suresh, this is Tom Gruber.

MR. PISINI: Yes.

MR. GRUBER: Would the anticipated loading conditions that you're referring to be presented by the naval architecture as the operating envelope of the vessel?

MR. PISINI: Yeah, that is correct.

MR. GRUBER: Okay. And would --

MR. PISINI: Yeah, that is to be -- I don't have the rules in front of me to give you the exact verbiage. But that is, that is what the intent is. It's actually provides the envelope as a guidance to

the master of the vessel. So it did.

MR. GRUBER: As a follow-up -- this is Tom Gruber again -- would that include the worst anticipated loading conditions from the naval architect?

MR. PISINI: Can I look into the rules? I can give you the exact verbiage there. But it should include the -- I don't recall the exact verbiage, but I know for sure that loading conditions are to be, are to be included there.

MR. STETTLER: So, Suresh, Jeff Stettler here. As a follow-up to that, it seems to me when they changed this to a container vessel that those loading conditions there should have been a new document submitted. And I don't believe Herbert Engineering ever referred to anything like that in our discussion with them.

MR. PISINI: Can you repeat that question, Jeff?

MR. STETTLER: Yes.

MR. PISINI: I'm sorry. Because I wasn't --

MR. STETTLER: Yes. In 2005 or 2006 this vessel was changed to a container vessel carrying containers on deck. So I would think, based on what you just said, there should have been a new anticipated

loading conditions guidance produced by somebody, presumably the naval architect, and submitted. And I don't believe we've seen that. And I don't believe that Herbert Engineering has produced that.

MR. PISINI: Those, those conditions --

MR. GRUBER: Is there a question though? That's an awful long statement.

MR. STETTLER: Yes. Have you seen anything like this since, since the vessel ever?

MR. PISINI: No. I have not seen any, any loading conditions supplied or submitted for this now yet.

MR. STETTLER: Okay. So this document that you refer to, the anticipated loading condition guidance, you've never seen it on the El Faro or anything applicable to the El Faro?

MR. PISINI: I've not seen for the El Faro.

MR. STETTLER: Thank you.

MR. GRUBER: Just one quick follow-up, Suresh, a follow-up to Jeff's question before.

He was talking about the loading of a vessel. Are the longitudinal strength calc and the bending moment calculations intended to be checked throughout the loading and unloading process? Or this an at-sea check?

MR. PISINI: You may have to rephrase that question, Tom.

MR. GRUBER: Are these bending moments supposed to be checked during the loading process from the time the first container is loaded till the last one is loaded? Or is it supposed to be checked for the vessel and the conditions putting out to sea?

MR. PISINI: Yeah, the master of the vessel, he has to make sure because he has the limits. We have a maximum still water bending moment in a hogging condition, and we have a maximum still water bending moment in the sagging condition. So, and then we also, the vessel should also be having, so at the time when the vessel was built the vessel should have some loading conditions, anticipated loading conditions. So he can use that guidance.

And then he has to calculate the -- or he has to make sure in any, any kind of operation, in any loading operation, whether it's to be loading or unloading, he has to make sure that those limits are not exceeded.

I'm just looking into the 1975 rules just so I can read out what exactly that particular section states.

MR. STOLZENBERG: Okay.

MR. PISINI: Just give me a minute.

(Pause.)

MR. O'DONNELL: Suresh, while you're looking into that rule, would you like a break for a moment to get up and get some water maybe?

MR. PISINI: I'm good.

MR. O'DONNELL: You're okay? All right.

MR. GARZA: I would.

MR. O'DONNELL: I think Mr. Garza would appreciate a five minute bathroom break. If we could go off the record, Eric. Is that possible?

MR. GARZA: Unfortunately, I'm not in a position to be able to run anywhere right now.

MR. STOLZENBERG: Absolutely. Let's take a five minute break and we'll come back. Off the record.

(Whereupon, the above-captioned went off the record at 2:12 p.m., and went back on the record at 2:19 p.m.)

MR. STOLZENBERG: Okay, the time now is 14:19. This is Eric Stolzenberg, NTSB. We're back on the record with Suresh.

MR. PISINI: Yeah. Eric, to answer, to answer your question, similar conditions may have been submitted when the vessel was lengthened in 1992-93. But we have not been able to find -- we did, we do have

some loading conditions in our records which say that they are applicable to several vessels and that also includes El Faro on it. But there is really -- but we have not been able to, I've not been able to confirm whether those conditions actually belong to the El Faro or not.

Because just we have a microfilm and the front page of the microfilm states it's applicable to about five or six different hulls, and El Faro is one of them.

MR. STOLZENBERG: Okay.

MR. PISINI: But we do have the loading conditions.

So probably if that is, if those conditions are applicable to the El Faro, so I think those are the conditions that may have been developed after the vessel was lengthened. But I have no documentation to confirm that.

MR. STETTLER: Suresh, this is Jeff Stettler here.

It sounds like those are old documents at the very least based on the fact that you're referring to fiche. So it probably doesn't include the more recent conversion to container carriers; correct?

MR. PISINI: I have not seen any conditions,

Jeff, after the conversion to container.

MR. STOLZENBERG: This is Eric Stolzenberg with NTSB.

So just to summarize what you stated, there's indications there are some newer loading conditions that were developed after the 1993 lengthening that may be applicable to the El Faro but can't be confirmed yet.

MR. PISINI: Yes.

MR. STOLZENBERG: But there's no records regarding updated loading conditions from 2004-2006. Is that statement generally correct, what I just stated?

MR. PISINI: That is, that is correct. But the only other, other place where I have two, two loading conditions is in the -- was in the CargoMax that was approved back in 2008-2009. But those conditions were not approved for the strength.

MR. STOLZENBERG: Okay. This is Eric Stolzenberg with NTSB.

So we can look at some of the references within CargoMax to see where they're drawing loading conditions from as well? That might be as far as our document search goes?

MR. PISINI: Yeah, you can. You can do that,

yes.

MR. O'DONNELL: Eric, this is Louis O'Donnell in Houston.

Suresh, quick question: the master, whether it was '74 or '92, '93, '96, 2006, would have been provided conditions from the naval architect or the designer what the max loading condition of the vessel could be or what he can and cannot exceed, or what he cannot exceed; correct?

MR. PISINI: Uh-huh.

MR. O'DONNELL: Would that not be true?

MR. PISINI: Yes. Whether he got, whether the naval architect provided a condition demonstrating a maximum still water bending moment, that may or may not be true. But definitely the naval architect may have provided some loading conditions.

MR. O'DONNELL: Right. Okay.

MR. PISINI: Showing the strength and showing the strength information along the length of the vessel. So that gives the master of the vessel some guidance.

MR. O'DONNELL: Okay. And would it not be the master's responsibility, based on having that information from the designer or such, to not exceed those?

MR. PISINI: It should be the responsibility of the vessel master to ensure that --

MR. O'DONNELL: Right.

MR. PISINI: -- those maximums are not exceeded.

MR. O'DONNELL: Okay, thank you. No further questions.

MR. STETTLER: Jeff Stettler. Could we just follow up, Suresh?

What year would -- for a vessel like the El Faro, what year would it have been built where it would have been required to have a loading manual? When did that requirement, would that requirement have kicked in for the El Faro or a vessel like the El Faro say?

MR. PISINI: I have to go back and check in the rules.

MR. STETTLER: These are in, these are in ABS rules; correct?

MR. PISINI: Yeah, that is correct. Yeah.

If built, if El Faro was built today it requires the loading manual.

MR. STETTLER: Right.

MR. PISINI: I can, I can confirm that.

MR. STETTLER: Okay.

MR. PISINI: But when, which year this

requirement came in, I'm not sure.

MR. STETTLER: Okay, thank you.

MR. STOLZENBERG: Eric Stolzenberg with NTSB.

Suresh, would it also require a loading instrument or just a loading manual if it was built today?

MR. PISINI: Yes, the vessel now would require the loading instrument if it was built today.

MR. STOLZENBERG: Okay, thank you.

Mike Kucharski, if you're still on the line I'd ask you if you have any questions regarding this loading manual and the master and the rest?

MR. KUCHARSKI: I'm just trying to follow where the jump is from what's required today and what was required of a vessel as it was -- the El Faro when it sailed on its last voyage. Was there supposed to be some guidance given to the master as far as bending moments besides what is in the CargoMax program?

MR. PISINI: CargoMax is the loading program. The vessel is not required to have a loading program. But when it comes to your question whether the master should have some kind of a guidance, so the guidance that the master has, he definitely has the maximum still water bending moments in the sagging and the hogging conditions, and he also has some scantling

loading conditions.

So that is, I think in my opinion that is the guidance that the master has. And it is his responsibility to make sure that in any of the loading conditions that the vessel is being loaded, he has to ensure that those maximum sagging and hogging still water bending moments are not exceeded.

MR. STETTLER: This is Jeff Stettler.

Suresh, is that a requirement or is that your opinion that he should have something?

MR. PISINI: It is my opinion. But what I'm saying is he has that information available to the -- that information is available to the master. And it is my opinion that he has to make, the master has to make sure that those values are not exceeded.

MR. STETTLER: Could I follow up? When you say the information is available to the master, how is the information available to the master? You mean the naval architect did it at some point or it's available to the ship owner, the operator? You say "the master."

MR. PISINI: Yeah.

MR. STETTLER: Is it required to be carried on board?

MR. PISINI: The maximum still water bending moment is also given on the approved ue drawing, on the

approved scantling plan. The vessel, that is the vessel should have a copy of the approved scantling plans on board. So way he has information for the maximum still water bending moment.

MR. STETTLER: That's right.

MR. PISINI: And the naval architect may have provided some anticipated loading conditions which can be used as guidance. And those are the anticipated loading conditions that I'm talking about.

MR. STETTLER: Okay. So but that may have been, as opposed to they are required that be there; correct?

MR. PISINI: Yeah.

MR. STETTLER: There's no requirement, I think you've said.

MR. PISINI: Yeah. I think it doesn't say anywhere in the rules that is a must to have on board.

MR. STETTLER: Okay, thank you.

MR. KUCHARSKI: Okay. This is Mike Kucharski.

And so I guess I have a follow-on. Practically speaking, the master's responsible to make sure that the still water bending moments are not exceeded. How does the master do that?

MR. PISINI: I do not know. Even though I've

sailed on the ships, I mean I was, I was a maintenance guy, a navigation and maintenance guy.

MR. KUCHARSKI: Well, I mean, I mean it's the master's requirement to keep it in stability. And we batted that around, you know, with the stability manual. I'm sure you guys have done a lot of stability calculations longhand, you know, sailing your vessels. And I'm just thinking in my mind as an ex-master, I mean I've sailed on a vessel that had a loading computer, but without it are you telling me that they're going to sit there and they're going to go through some kind of advanced calculations for anything but the actual test load conditions?

MR. PISINI: Can you rephrase the last part of your question, please?

MR. KUCHARSKI: Yeah. You know, you mentioned that there are or there may be, you know, the naval architect may provide some, you know, sample conditions. If you fall outside of those parameters, you're not at the sample but somewhere near there, I guess my questions is how do I know that they're not being exceeded if it's something else but what's in the test condition?

MR. PISINI: Yeah, I don't know how the master has, master ensures that. But that is the

information that's available to the master there.

MR. KUCHARSKI: Okay, thank you.

MR. STOLZENBERG: Floor is still yours, Mike, for any questions. I know sometimes we overlook you when you're on the phone there.

MR. KUCHARSKI: No, I, I think Mr. Gruber mentioned about the Cargo Securing Manual. And I have questions about the, you know, the fixed devices on the ship. So maybe I could ask Mr. Pisini those questions.

MR. STOLZENBERG: Okay, Mike.

MR. KUCHARSKI: Or whenever you feel it's appropriate.

MR. STOLZENBERG: Hold off for a moment. I'll ask Houston if, Lou, whether he has any other questions along these lines?

MR. O'DONNELL: No further questions, Eric.

MR. STOLZENBERG: Okay. Around the table here in Washington along these lines?

Mike, why don't you do the questions you have then regarding the Securing Manual.

MR. KUCHARSKI: Okay, great. Thank you.

Mr. Pisini, this is Mike Kucharski. I've looked over the Cargo Securing Manual and somewhat the regulations a little bit. Was -- the vessel was required to have a Cargo Securing Manual?

MR. PISINI: Is the vessel required to have a Cargo Securing Manual?

MR. KUCHARSKI: Yeah. The El Faro, yes.

MR. PISINI: I'm not sure. It is a formal requirement. But I do not know when that requirement came into force. But I need to go back and check whether is a vessel required to have a Cargo Securing Manual or not. It is, it is a formal requirement.

MR. KUCHARSKI: Okay. The vessel did have a Cargo Securing Manual which was approved by ABS.

MR. PISINI: Yes, that is correct. Because I do not see a copy of the Cargo Securing Manual. It was approved in 1998. But whether that requirement was there, to answer your question, or whether that requirement, whether the vessel is required to have a Cargo Securing Manual or not, I have to go back and check based on the year the vessel was built.

MR. KUCHARSKI: Okay. Okay. But once aboard the vessel, are you familiar with any process -- you know, they, we talked about the container stacks on there -- and is there any approval process for the container stacking weights on your loading instrument as opposed, you know, or I should say similar to the requirements for looking at the stability on the vessel, you know, on the loading instrument?

MR. PISINI: We have a process in place for following the review of the Cargo Securing Manual. So that process will be a guideline, be a guideline as to what test processes are done, depending upon the cargo that is being carried on board. So the designer submits some calculations showing that the securing arrangement is satisfactory. And we also perform our own independent check to ensure, to ensure that all the cargo is secured safely.

So that is, in essence, I mean that those are the guidelines we have, we have those guidelines in our process, internal processes here.

MR. KUCHARSKI: Okay, great.

And specifically there's a process for approving a loading instrument -- correction, a stability instrument if you will, where you have test cases and you sort of compare the to the stability manual that's in there and compare your stability instrument, the cargo maps in this particular instance on El Faro.

I've been looking at the cargo stacks on the main deck containers because it's silent on the low decks. And is there any process that ABS has to prove that the figures for these lashings on the container stacks meet some kind of a test condition, if you will?

MR. WHITE: Excuse me. This is Mr. White.

Mr. Pisini, are you familiar with the Cargo Securing Manual? And is that something that falls within the Structures Group?

MR. PISINI: Yes.

MR. WHITE: Okay.

MR. PISINI: The Cargo Securing Manuals are reviewed by the Structures Group.

MR. WHITE: Okay. Thanks.

I'm sorry, Mr. Kucharski. Do you remember Mr. Kucharski's question?

MR. PISINI: Yes, I do remember. Yeah.

So, Mr. Kucharski, your question you are primarily asking, is there any guidance for the way the containers are loaded on the second deck? Is that right?

MR. KUCHARSKI: No. No, my questions is when I'd asked Mr. Gruber if there was any similar for the container calculation, simply approving that the figures on the CargoMax calculations comply to what's in the securing manual. And he said he couldn't answer that because in the stability end where they compare the test cases. But he wasn't sure if there was a similar process.

So I'm asking you, is there a similar

process to see what's in the Cargo Securing Manual, the calculations there, then the CargoMax securing calculations match?

MR. PISINI: Okay. To answer your question, in the Cargo Securing Manual we only review the securing arrangements, whether the securing arrangements are adequate for the cargo that is being carried. And the loading conditions have to be evaluated separately. For stability purposes it is they have an approved stability program on board. Yeah.

So, so that is what, that is what we generally do. The ability of the Cargo Securing Manual is limited only to the securing arrangement of the cargo that is being carried.

MR. KUCHARSKI: No, I understand that. What I'm look -- when I looked at the CargoMax program it has lashing and sufficiency of the lashings meets or it does not meet. I see negative numbers on El Faro's last voyage and figures in red. And I'm trying to under -- trying to get my arms around this and see, you know, if these are based on the Cargo Securing Manual and if ABS checks those?

MR. PISINI: No, I, I haven't, I have not been able to look at the Cargo Securing Manual for this

vessel. And I do not have the document in front of me.

If you have specific questions on the Cargo Securing Manual, I have to, I have to look into those to answer the question, questions here.

MR. KUCHARSKI: Okay. Okay, then maybe we can table that for another time. So then let me ask you --

MR. GRUBER: If I --

MR. KUCHARSKI: Go ahead.

MR. GRUBER: If I could just follow up here. This is Tom Gruber.

Suresh, I have previously testified that the CargoMax program was reviewed only for stability purposes.

MR. PISINI: Yes.

MR. GRUBER: In that regard, did you look at the CargoMax program for any portions of the, any of the strength portions, including the Cargo Securing Manual?

MR. PISINI: No, it's not been looked at.

Oh, can you repeat? You said cargo -- you are combining CargoMax and Cargo Securing Manual. These are two different documents.

MR. GRUBER: My question was did you look at the CargoMax program for any of the strength issues, --

MR. PISINI: No.

MR. GRUBER: -- including those that were in the Cargo Securing Manual?

MR. PISINI: We, we have never looked at the, our Structures Group has not looked at the CargoMax for strength.

MR. GRUBER: Thank you, Suresh.

MR. KUCHARSKI: Great. Thank you for that clarification, Mr. Gruber.

Now, specifically on the Cargo Securing Manual, which you said that you did review; correct? Or the ABS did review?

MR. PISINI: That is correct.

MR. KUCHARSKI: Okay. There's wording which talks about the cargo securing arrangements and equipment having sufficient, sufficient residual strength. And this is according to the cargo securing code which the Coast Guard references in one of their NVICs for reviewing the Cargo Manual. And I can give you the exact section if you want to look at it later. I don't expect you to pull it up now. It's Section 2.4.

Does the ABS have any way to capture how there's enough residual strength that remains in the cargo securing arrangements on board the ship, you

know, the residual strength?

MR. PISINI: In the cargo securing arrangements, so when they submit that information to us, when they submit the Cargo Securing Manual to us they will also submit a set of calculations for the, for the different types of equipment that they carry on board the vessel. And we also perform our independent checks. And they, what they are doing along with the -- for all the cargo securing equipment that they use, they submit test certificates to us which actually give us, which actually give us a breaking strength, depending upon the type of the securing, the type of the securing equipment. It gives us a maximum allowable parameters.

So when we, when we perform our own independent assessment, we verify that those are not exceeded.

Probably when you are saying, because I don't have the Section 2.4 in front of me, when you are talking about the residual strength, probably there is a ratio of what is a maximum versus what is being utilized, or vice versa.

MR. O'DONNELL: Louis O'Donnell. If I may interject here to Mr. Kucharski's question, or Captain Kucharski's question I should say.

Mike would it be that you're looking for residual strength in the longevity of the equipment or --

MR. KUCHARSKI: Yes.

MR. O'DONNELL: Yeah.

MR. KUCHARSKI: Longevity.

MR. O'DONNELL: Okay. But would it not be -- Suresh, I'll ask you to respond to that. I mean we look at the basic spec sheet for whether it's twist locks or whatever it may be --

MR. KUCHARSKI: Yeah.

MR. O'DONNELL: -- for min/max based on number of cycles that gear is used by the crew. Would it not be the crew's responsibility under a safety management system and preventive maintenance system to make sure the cargo securing gear they are using hasn't exceeded those cycles or that it's not damaged or, you know, that type of, that type of part of the cargo securing gear?

MR. PISINI: Yeah.

MR. KUCHARSKI: And that's in there so to speak. But further on in the cargo securing code it speaks to periodic examinations/re-testing as required by the administration. So are there class requirements for the periodic examination that's specifically re-

testing? And how do you re-test?

MR. PISINI: I mean we follow the requirements from the code. And as far as the re-testing is concerned, I'm not sure how, when it has to be re-tested.

MR. KUCHARSKI: Okay. And, guys, I'm not trying to hide the ball on this. But I'd asked TOTE, do you have any program for testing the D rings and buttons where they pulled out of the deck or anything like that, and there hasn't been any response from TOTE on that.

And I'm looking at the cargo securing code and it talks about the re-testing and periodic inspections. And is there something besides just eyeballing this thing? I mean, you know, your UT, you know, you look at hull thicknesses and deck thicknesses. They have clover leafs, they have D rings, they have buttons throughout the deck. You know, is there, is there any requirement from ABS, you know, under the hull survey that you periodically test these?

MR. PISINI: I'm not sure. I have to look into that.

MR. KUCHARSKI: Okay. Okay. The, I think the last thing I want to ask then, you know, but I

guess we need to have a separate discussion on this, or maybe after you have some time to review documents where we can have a follow-up. Was the El Faro required to have any sort of document called "guidance to masters"?

MR. PISINI: Regarding? Regarding what?

MR. KUCHARSKI: A document either for strength or thin moments. There's a document called "guidance to masters" that I see that's an IMO requirement. But I'm not sure if the vessel when it was built or, you know, when it was lengthened if there was any requirement to have "guidance to masters"?

MR. WHITE: Captain Kucharski, is your question whether or not that publication is required aboard?

MR. KUCHARSKI: Yes.

MR. WHITE: Are you familiar with that publication, Mr. Pisini, or is that a --

MR. PISINI: No, I am not familiar with the publication. I have to go back and check whether it is required to have such kind of a document. But in my, to my knowledge I have not seen that kind of a document, not that kind of a document. But I have to go back and check whether they are required to have such kind of a document.

MR. KUCHARSKI: Okay, thank you. Thanks for the clarification too.

MR. WHITE: Mr. Kucharski, is that an IMO publication you're referring to?

MR. KUCHARSKI: Yes.

MR. WHITE: Okay. Can you give us any more on that? IMO "guidance to masters." Is there anything else?

MR. KUCHARSKI: No. I can -- I'll tell you what, I'll send Lou O'Donnell the site.

MR. WHITE: Okay, thank you.

MR. KUCHARSKI: And I'll give him the PIN site on that; okay?

MR. WHITE: Sure. Thanks.

MR. STOLZENBERG: Okay. This is Eric Stolzenberg. Mike, any further questions?

MR. KUCHARSKI: No, that's it. Thank you.

MR. STOLZENBERG: Okay. Lou, any questions?

MR. O'DONNELL: No. No further questions.

MR. STOLZENBERG: Jeff, on the same topic?

MR. STETTLER: On the same topic, no. We can go on to the next topic.

This is Jeff Stettler. I've got two other -- I think they're brief -- topics. These are questions from others.

But basically, Suresh, could you please discuss the structural assessment of deck loading for the 2014 installation of the fructose tanks, fructose tanks on the El Faro, which we understand to be completely different than the fructose tanks that were installed on the El Yunque? Could you discuss that on the El Faro, for the El Faro, please?

MR. PISINI: Yes. We, we did perform the review of the fructose tanks but the review was limited. We performed a review of the structure, the under deck structure and review of the fructose tanks. We received calculations from the designer. And we found that our test records were within the acceptable limits. And the installation was also at TOTE.

MR. STETTLER: Okay, thank you. I think that's all for this one.

MR. STOLZENBERG: Any other?

MR. PISINI: Okay.

MR. STOLZENBERG: Any other questions from Mike or Lou regarding fructose tanks?

MR. O'DONNELL: No, sir. No questions from Houston.

MR. STOLZENBERG: Okay.

MR. O'DONNELL: But I'm here. Thank you.

MR. STETTLER: Okay, Jeff Stettler. My last

question, actually from somebody else. But this regards the more recent activities on the El Faro. We understand through interview with some of the crew that there was some ongoing conversion activity to prepare the ship for some West Coast trade coming up. And basically the question is: were any evaluations submitted or discussed with ABS regarding these changes, ongoing changes? Please provide specifics.

MR. PISINI: Yeah, we received some drawings I think back in August or September. And there were also some drawings in house at the time of the, at the time of the incident. But I am not sure from a -- I am not quite sure whether what we were getting were these being prepared for a specific operation. I'm not sure.

But we did, we did have some drawings for modifications in house.

MR. STETTLER: Okay. Could you describe those drawings?

MR. PISINI: I don't have that information in front of me. I can, I can check.

MR. O'DONNELL: This is Louis O'Donnell in Houston.

Just to add what little more limited knowledge I have, I also don't know exactly what plans we had, Jeff. I think there was a few electrical plans

and maybe a few arrangement plans for equipment that had been submitted. But the review activity was suspended after the casualty and it was not completed.

MR. PISINI: There were some structural drawings as well.

MR. O'DONNELL: And there were some structures and electrical, and electrical I think that were submitted. But I would have to investigate and get that information. But I think the activity or the review activity was suspended after 1 October.

MR. STETTLER: So this is Jeff again. So just I take that to mean you didn't put a whole lot of man hours into the activity; is that correct?

MR. O'DONNELL: I would have -- I can't answer that question.

MR. STETTLER: Okay.

MR. O'DONNELL: I would have to pull up the project or whatever we had. But I think it was suspended once we knew about the casualty.

MR. STETTLER: Okay, thank you.

MR. STOLZENBERG: Suresh, this is Eric Stolzenberg, NTSB.

Changing, shifting gears a little, are you familiar with the Alternate Compliance Program or ACP?

MR. PISINI: Yes, I am familiar with the

program.

MR. STOLZENBERG: Okay. With regards to structural reviews and assessments, is there a difference when a domestic vessel enters the Alternate Compliance Program?

MR. WHITE: Is there a difference as far as what ABS might do?

MR. STOLZENBERG: Yes. And I'll rephrase.

You know, for a domestic vessel that's under, in the standard Coast Guard regulated environment but it moves into the Alternate Compliance Program, from your perspective at ABS in Structures what is the difference?

MR. PISINI: Okay. Now let me, let me rephrase your question. So your question is, is there a difference in the level of work we perform for domestic vessels and the vessels involved in the Alternate Compliance Program?

MR. STOLZENBERG: Yes. For a similar type of vessel.

MR. PISINI: Yeah. To my knowledge, as far as the review of structures goes, the requirements, the requirements remain the same. But to give you the right answer I, I have to go back and check. But from my knowledge, from a Structures point of view, the

requirements are the same.

MR. STOLZENBERG: Okay. In your experience -- and this is an opinion question -- is there a, is there a difference in the efficiency of the program whether a vessel is in Alternate Compliance Program or under the standard Coast Guard domestic review? Does everything work smoothly regardless of which, which side the vessel's on?

MR. PISINI: That's part of my statement. It is, yeah, it is effective whether the vessel is in the Alternate Compliance Program or not. As far as the planned review process is concerned, things go very smoothly.

MR. STOLZENBERG: Okay.

MR. PISINI: The only difference being when ABS is authorized to perform the review for all the vessels enrolled in the ACP program, so we perform all the review and they get the notifications. And they pick some drawings for our side. So that gives us some confidence that we are doing the review right when we perform the review on behalf of the Coast Guard.

MR. STOLZENBERG: So if I understand it, they spot check so to speak a certain percentage of the, of the work?

MR. PISINI: That is correct.

MR. STOLZENBERG: Okay. In the case of the structure work that was done for the El Faro, are you aware of the Coast Guard spot checking any of that work?

MR. PISINI: I have to go back and check the records. The vessel was enrolled in the ACP program in 2006. So all the modifications should have been, since, since the vessel was enrolled in the ACP program, should have been notified. But whether they picked up any for our side or not, I don't have that information.

MR. STOLZENBERG: Let me follow up one point. If they did do an oversight spot check where would that information be available? Where would it be recorded?

MR. PISINI: Where would it be recorded? This is how the process works: we, when we perform a review for ACP records we send -- they, we update a spreadsheet. And then the spreadsheet contains the information of what drawings are reviewed. And then that is being sent to the U.S. Coast Guard once every two weeks.

And once they get that, get that information, they will pick whatever drawings they wish to see. And they will request us to forward those drawings to them. And we have to send those drawings

to them in a stipulated period of time. And they also have a stipulated period of time to return the drawings and their findings back to us.

So once we get their findings and that, those findings they come in the form of a letter, and that letter is uploaded into the project. So that is one way of tracking where we have those oversight finding that is from the U.S. Coast Guard.

MR. STOLZENBERG: Okay, thank you.

Any questions on the phone or in Houston about ACP?

MR. GRUBER: Tom Gruber. Suresh, you indicated that the ACP program they were enrolled in 2006. Can you clarify --

MR. PISINI: Yes.

MR. GRUBER: -- was that when the owners requested entry to the ACP program? And was there a different date that the Coast Guard accepted them into the program?

MR. PISINI: I, I do not have, I do not have -- I do not have an answer to that question, Tom. I have to go back and check the records. But only knowing the vessel was enrolled from a certain date. But I have to read the correspondence to give a, give a correct answer to you.

MR. GRUBER: Okay, thank you.

MR. STOLZENBERG: Okay. I don't have any more questions. But I'll start with my colleagues here in D.C., any other questions or topics you have?

MR. GRUBER: No more questions for me.

MR. WHITE: Nothing else.

MR. STOLZENBERG: And I'll move to the phone with Mike Kucharski?

MR. KUCHARSKI: No, nothing else. Thank you, gentlemen.

MR. STOLZENBERG: And Lou in Houston?

MR. O'DONNELL: Nothing further. Thank you.

MR. STOLZENBERG: Okay. Suresh, I'll ask a standard question I like to ask at the end of interviews which is, is there something we should have asked you that we didn't that could be a pertinent piece of information in understanding how ABS regulates, or even with regard to the loss of the El Faro?

MR. PISINI: No. I think we covered all the, all the areas that I would expect to.

MR. STOLZENBERG: Okay.

MR. PISINI: So I have, I have no further questions.

MR. STOLZENBERG: Well, thank you very much

then.

This will conclude the interview. It is 14:56. And we are going off the record.

(Whereupon, the above-captioned matter went off the record at 2:56 p.m.)

C E R T I F I C A T E

MATTER: El Faro Incident
October 1, 2015
Accident No. DCA16MM001
Interview of Suresh Pisini

DATE: 02-01-16

I hereby certify that the attached transcription of page 1 to 97 inclusive are to the best of my professional ability a true, accurate, and complete record of the above referenced proceedings as contained on the provided audio recording; further that I am neither counsel for, nor related to, nor employed by any of the parties to this action in which this proceeding has taken place; and further that I am not financially nor otherwise interested in the outcome of the action.

--[redacted]-

Office of Marine Safety
Transcript Errata

Matter: El Faro
Ref #: DCA16MM001

Mr. Gruber:

Enclosed with this letter is a copy of the transcript of the interview of Mr. Pisini taken on 1/29/2016. Kindly have Mr. Pisini review this transcript for accuracy and provide corrections, if any, in the attached table.

Thank you in advance for your attention to this matter.

2/8/2016
Date

Eric Stolzenberg
Major Marine Accident Investigator

TABLE OF CORRECTIONS TO TRANSCRIPT OF INTERVIEW FOR

TAKEN ON

PAGE NUMBER	LINE NUMBER	CURRENT WORDING	CORRECTED WORDING
7	18	Volume centers	Oil tankers
7	19	Promoted	Converted
7	20	similar	Two
7	21	Workings	Converting's
7	23	To go to a	And joined a
8	2	--	Naval Architecture
9	1	Planned	Plan
9	15	Cyber tools	Type Approval
9	20	So, yeah	Please delete these words
9	22	Vivisection	Girder section
9	24/25	Including all the equipment that is installed,	Please delete these words
10	1	Foundations in way	Please delete these words
10	2	House	Hull
10	13	Yeah	Please delete this word
10	20	When, when we	Please delete these words
10	23/24	So for all the longitudinally continuous members	Please delete these words
11	1	We verify the -- we	Please delete these words
11	1	We arrive with	Please delete these words
11	3	So we identify	Please delete these words
11	4/5	Point forward	0.4 L
11	6	Point forward	0.4 L
11	7	Point forward	0.4 L
11	10	Point forward	0.4 L
11	12	Silhouette or	Still water
11	17	Control	Transverse
11	18	We can – and I	IACS
11	20	Plan for the	Please delete these words
11	21	Highest	Please delete this word
11	23	Silhouette	Still water
11	24	Support	Provided
11	24	The section has,	Please delete these words
11	25	Point forward	0.4 L
12	8	Perform the section modulus calculations	Please delete these words
12	12	Thickness	Stiffeners

12	13	Latest	Please delete this word
12	17	Sampling	Calculating
12	19	Thickness	Stiffeners
13	7	modular	Please delete these words
13	9	Test	Strength
14	20	Which states	Please delete these words
16	1	Of the,	Please delete these words
16	2/3	So that's why, that's why	Please delete these words
16	3	Calculate	Perform
16	4	Basically do	To verify
16	5	Of an ideal elastic	Please delete these words
16	8	When those	submitted
16	9	In sagging	Sagging cases.
16	9	So	Please delete this word
16	14	And the	And if the
16	17	What -- when we perform	Please delete these words
16	19	What is	Please delete these words
16	24	--	plate
16	24/25	If it is a -- whether we are,	Please delete these words
16	25	Sampling	checking
17	1/2	Based on the thicknesses, thickness of the bottom plate	Please delete these words
17	2	Say	calculate
17	8	In our basis	Please delete these words
18	5	That is. That is,	Please delete these words
18	5	--	correct
19	15	--	Spreadsheet
20	3	Planning	Plan
20	15	SBR	SVR
21	3	When we do	Please delete these words
21	11/12/13	But not, no, not globally yet. When I say "globally," it's not, we had not performed any buckling tests on the,	Please delete these words
21	15	It was the buckling was just	Buckling was
21	16	Limitedly	limited
22	21	Submission	thickness
23	23	, the	Please delete this word
23	24	They did	dated
25	22	Whole	Hull girder
27	6/7	And if it is, if it is wide, and let's say to be extending in the area of the --	Please delete these words
27	11	Thicknesses plus the thickness	Thicknesses of the plate plus the stiffeners
27	12	Thickness	Stiffeners
27	12	To the gauge	Please delete these words

27	16	Model	modulus
28	8	Notice	note
28	11/12	The vessel is -- we can	Please delete these words
28	25	So when post-sinking when	Post-sinking
29	1	Was the report that was, that	Please delete these words
29	2/3	-- we performed a longitudinal strength assessment for strengthening.	strength
29	4	Cutting	In-house
30	2	Because	Please delete this word
30	3	--- At the	The owners and the extent of the re-assessment is at the
30	4/5	Then when we performed	perform
30	5/6	We used, we used the year	To the rule year
31	2	There are	Please delete these words
31	9	Yeah	Please delete this word
31	12	Design	Area of the vessel
31	15	Framing in somewhere	Framing somewhere
33	24	Instruction	references
33	24/25	At the discretion of the --	Please delete these words
33	25	Vessel safety is not,	Vessel's safety
34	1	Based on the latest rules	Please delete these words
34	23	At the time of	Please delete these words
35	25	And validate of the	Credit for the
35	25	There was	Please delete these words
36	4	The section model	The minimum required section modulus
36	5	Scantling	scantlings
36	7	Relevance	Availability
36	8	They do a	Request us to perform
37	15/16	And then we come up with	Please delete these words
38	5	AS it is used today	Please delete these words
39	12/13/14	Depending upon the extent of the analysis, if the client submits the calculations to us, at times we will not receive a calculation	Please delete these words
39	14	So we	we
39	17	Meet the	Please delete these words
40	5	Your whole	Your hull
40	13	And went with	Please delete these words
41	4	Test from	perform
41	9	Weight figures are	Wastage is
41	10	Short tons	Percent
41	13	Short tons there	Percent
43	7	-- we	to
43	9/10	Then we can consider conservative analysis	Please delete these words

44	1	Evaluated	Allowances
45	15	Picture	Sister
45	22	90.9 inches	90 feet and 9 inches
45	23	Inch	Feet
47	14	They have the	Please delete these words
48	6	Float	Floors
48	10	Alignments	Arrangements
48	11	Will be	Please delete these words
50	7/8	The top thickness, for the top thickness of the vessels	Please delete these words
50	10	Equip	Request
50	10	The	Approval
50	16	Alignments	Arrangements
50	21	--	Same,
53	17	It's	It is
53	21/22	The – he's opened the deficiency	A technical
54	3	Entirely	Please delete these words
54	17	Periods	Queries
54	18	-- back in	Surveyor
54	20	(unintelligible)	Surveyor
54	21	Look at	Locate
54	23/24	This is the main thing	Please delete these words
54	25	Yeah?	Please delete this word
55	5	That's the	Please delete these words
55	6	The fourth	Please delete these words
55	7	Fourth	Post
55	18	So the lesson was	Please delete these words
57	7	Exceeded when in	Exceeded in
58	6/7	The applicable	Even by
58	7/8/9	Was the year that the vessel was built. So the same requirements, same requirements will apply	, a vessel of this type did not require a loading manual
58	15	That is correct.	Major modifications may be based on the latest Rules. Where application of the latest requirements would not result in an overall improvement of safety due to the arrangement of existing equipment, the Rules in effect at the time of the vessel's construction may be considered. The determination shall be made by the Divisional Assistant Chief Engineer.
58	20/21	Yeah. Yeah, the vessel is based on the year the vessel was built.	Please delete these words
58	23	Based on the anticipated loading conditions	For loading conditions that departed from a reasonable uniform distribution
58	24 / 25	Some loading conditions	Please delete these words

58	25	Conditions which	Conditions as above which
59	1/2/3	Loading manual of what we have in the character on the vessel which are built now.	Loading manual.
59	7	Developed but	Developed for a similar vessel in the series but
59	11	Conditions showing	Conditions that depart from a reasonable uniform distribution showing
59	12/13	Anticipated conditions	Anticipated conditions in the form of curves
60	13	Anticipate – as I said, the	Anticipated loading conditions as described previously, The
60	14	Have anticipated	Have these anticipated
60	14/15	To be placed	Please delete these words
60	16	The vessel	The vessel in the form of curves
60	22/23/24	It doesn't – it is basically I don't, I don't know whether there's – what name they call it.	I don't know by what name is this referred to.
61	14	Yeah. Yeah	Please delete these words
61	19	Point forward	0.4 L
61	22	And we, and	Please delete these words
61	24	So that is	So
63	13	Did not have	Did not require to have
63	18	To perform	Please delete these words
65	9	Conditions are	Conditions that depart from reasonably uniform distribution are
65	21	Wasn't	Was digressed
67	18	In any	That in
68	25	--- We did	Them
69	3/4	But there is really but we have not been able to,	But
69	4	To confirm	To find any correspondence to confirm
69	7	Because just	Please delete these words
71	10	Uh-huh	Yes
72	4 / 5	Not exceeded	Not to be exceeded
73	25	Scantling	Please delete this word
74	12/13	To the -- that information is available to the master	Please delete these words
74	14	He has to make,	Please delete these words
74	25	Approved ue drawing, on the	Please delete these words
75	13	Yeah	Yes
75	16/17	Yeah. I think it doesn't say anywhere in the rules	I have not been able to find a rule cite
75	17	Have on	Have these loading conditions on
75	25	Even though I've	Please delete these words

76	1/2	Sailed on this ships, I mean I was, I was a maintenance guy, a navigation and maintenance guy	Please delete these words
78	4	Formal	SOLAS
78	11	Because	Please delete this word
78	13/14	Whether that requirement was there,	Please delete these words
78	14/15	Or whether that requirement	Please delete these words
81	11	Yeah	Please delete this word
81	13	Ability	Review
82	3	Into those	At the cargo securing manual
82	20	No, it's not been looked at	Please delete these words
83	4	We have never looked at the	Please delete these words
84	2/3/4	In the cargo securing arrangements, so when they submit that information to us	Please delete these words
84	6	Equipment	Cargo
84	8	And they, what they are doing along with the	Please delete these words
84	10/11	Which actually give us	Please delete these words
84	15	When we	Please delete these words
84	16	Those are	Those maximum allowable parameters
85	20	Yeah	Yes
87	23	Not that kind of a document	Please delete these words
89	10	We performed a review of the structure	To
89	13	Out test records	The stresses
89	14	And the installation was also at TOTE	Please delete these words
90	9	Yeah, we received	Yes, we received
90	11	At the time of the,	Please delete these words
90	13	What we were getting were these	These drawings
90	14	I'm not sure	Please delete these words
92	14	Now let me	Please delete these words
92	21	Yeah	Please delete these words
92	22	The requirements	Please delete these words
93	9/10	That's part of my statement. It is yeah	Please delete these words
93	13	Smoothly.	Smoothly either way.
93	19	Our side	Oversight
94	7	2006	2010
94	10	Our side	Oversight
94	17	Records we send -- they	Please delete these words
94	22	Get that	Please delete these words

If, to the best of your knowledge, no corrections are needed kindly circle the statement "no corrections needed" and initial in the space provided.

NO CORRECTIONS NEED. _____
Initials

SURESH K PISINI
Printed Name of Person providing the above information

[redacted]
Signature of Person providing the above information

02/22/16
Date