UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

OFFICE OF MARINE SAFETY
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In the Matter of: :
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MAJOR MARINE ACCIDENT :
COLLISION - JAPANESE FISHERIES : NTSB Project ID
TRAINING VESSEL EHIME MARU AND : No. 51701
U.S. NAVY NUCLEAR ATTACK : DCA01MM022
SUBMARINE USS GREENEVILLE :
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Tuesday,
February 20, 2001

Interview of

LT. ROBERT A. RONCSKA, USN

CONDUCTED BY:

TOM ROTH-ROFFY, NTSB
BILL WOODY, NTSB
LT CHARLIE JOHNSON, USCG
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P R O C E E D I N G S

LT. RONCSKA: I'm Lieutenant Robert Roncska.

MR. ROTH-ROFFY: Good morning, sir. My name is Tom Roth-Roffy an accident investigator with the National Transportation Safety Board.

I and several other investigators are here investigating the accident that occurred between the USS GREENEVILLE and the fishing vessel EHIME MARU that occurred on February 9, 2001.

For your information, the Safety Board is a Federal Government agency charged with investigating marine accidents that occur on the waterways of the United States. The purpose of the Safety Board's investigation is to determine the cause of the accident that occurred with the GREENEVILLE and to make recommendations aimed at preventing the occurrence of future similar accidents.

We make no effort to assign blame to any person, nor do we have authority to penalize any person for their involvement in any accident. Our investigation is strictly a safety investigation and not a legal investigation.

If you desire, you may have another person assist you with interview. Would you like to have somebody help you?

LT. RONCSKA: No.

MR. ROTH-ROFFY: Also joining me in this interview are representatives from the United States Coast Guard and the United States Navy, and I would like to ask them to introduce themselves at this time.

MR. WOODY: Bill Woody, NTSB.

LT. JOHNSON: Lieutenant Charlie Johnson, United States Coast Guard.

LT. KUSANO: Lieutenant JG Ken Kusano, United States Coast Guard.

COMMANDER CACCIVIO: This is Commander Caccivio from the U. Navy. And also will be -- possibly in the room Lieutenant Doug Hedrick from the U.S. Navy also. And Lieutenant Commander Rich Santomauro is standing just over here to our right.

MR. ROTH-ROFFY: Okay. With the introductions having been finished, I'll lead off with the questioning. And the way we normally do it is I'll ask a line of questions and I'll pass it to the next

fellow, and it will kind of go around in a circle. And then we might make a second round if we have any follow-up questions for you.

So, sir, would you kind of lead off by telling us what your duties are and kind of your background that brings you to this place?

LT. RONCSKA: Sure. I was commissioned as a line officer in May of '91. From there I went to the nuclear pipeline which consisted of nuclear power school for six months; prototype, which is also additional six months; and then to SOBC, which stands for Suubmarine Basic Course – Submarine Officer Basic Course, up in Groton, Connecticut, for approximate three months.

Then I was assigned to the USS WEST VIRGINIA as a junior officer in November of '92. Was there for approximately three years. And then I went on to my shore duty assignment, which was an instructor division officer at Naval Nuclear Power Training Command in Orlando, Florida. And I was there for approximately two and a half years. And after that, I went to SOAC, which stands for Submarine Officer Advanced Course. It's a continuation of the SOBC course, but more advanced. That was for approximately six months. And I reported to USS ASHEVILLE as the navigator, operations officer in July of 1998. I've been as a navigator, operations officer for about two years and seven months.

And during that time on board, I've conducted one Western Pacific deployment; conducted several operations consisting of trips to San Diego to SEAFAC, Eskimo, Canada or Eskimo, and went to -- conducted this WESTPAC with the SENIS Power Group.

That's basically my role as a submarine officer.

And as navigator, operations officer, I was responsible for all the day-to-day operations of the ship, as far as planning where we go and how we get there and the track plan. I'm responsible for navigation to the commanding officer and the safety of the ship with respect to track plan, to make sure the ship doesn't ground and contact avoidance.

MR. ROTH-ROFFY: And during your service aboard submarines, approximately how many commanding officers have you served under?

LT. RONCSKA: I have served under four

commanding officers; two on the WEST VIRGINIA, and this is my second CO commanding both on the USS ASHEVILLE.

MR. ROTH-ROFFY: And could you in general terms speak to what your experience is on how you go to periscope depth and what procedures you would normally follow, and whether or not they vary from boat to boat. Say from going from some submerged depth up to periscope depth, what do you have to do to make that happen?

LT. RONCSKA: First, you have to plan. You have to proceed to periscope depth periodically to conduct an evolution, such as clear the broadcasts. Then we -- whatever needs to be done on a periodic basic.

What you need to do first is figure out when you have to go to periscope depth and there's certain things you need to take into consideration. One is being the time of day. Do you need to rig the control room for a low level light situation so you're not blinded as you look out the periscope. It's not an issue if it's daylight because you can read the control room with the light.

Other thing is you need to prepare the control room for periscope depth operations, which consist of we have this system called racks. It's an underwater telephone system. You turn that up so you can hear, so if there's a close contact, you hear it.

You also have to turn up this microphone or speaker, which is our early warning speaker for ESM. Any platform that emits radar, we can pick that up with an early warning detection system and you can hear it if you're at periscope depth. And you test that prior to proceeding to periscope depth.

And there's other factors to make sure that the periscope is ready to go as far as the torque assist is on and the head window here is not on and is not required, and check. Things like that.

We normally do not energize our video camera system. We have a video taping system on board. It is not normal practice for us to energize that prior to proceeding to periscope depth because we don't expect something. If we expected something, we would energize it prior to, but we normally do not energize that.

Once we're ready to go to periscope depth, we conduct a brief with all the watchstanders involved. We conduct it with the control room parties, the diving

officer, the people who work from and are stationed there in the helm of the plane's chief of ops. And also, the ESM operator. In our standing orders, he's required to look at what contacts are expected, what threat emitters are out there. It varies from aircraft. Potentially, it's hazardous to submarines as far as in a wartime situation. Also you used to look at any land based emitters, how close we are to land so we can pick up threat emitters and so forth.

Also, the radio supervisor is also present for this brief to brief the COM plan on how we're going to get our messages, what time we need to get the messages and so on, what circuits we need to bring up and the purpose for proceeding to periscope depth.

Also, there's the auxiliary electrician corps which is another watchstander, which is -- he's in charge of the inertial navigation systems, to ensure that we can enter a GPS fix into our inertial navigation systems when we're at periscope depth.

Once the -- and the other main player is the sonar supervisor, which will also discuss what contacts we expect and we'll discuss which contacts we've seen. We'll also discuss if there is a merchant lane or some high traffic area that we have to watch out for or if -- and it depends on what operation we're doing. For example, if we're coming in with another submarine and his surface point was near ours -- not in the same water but we could expect to see him, we'd make sure that our water on the surface be -- we'd basically separate the water so we don't interfere with one another.

We look out. We'll brief. If we expect another submarine to be in the area we'll brief that we can expect him. And what we have done in the past is if we know we're going to be in close proximity -- and which close proximity means 10 miles away from the submarine -- we'll ask them to go active on sonar just to let us know where they're at as far as bearing so you can get better idea of where they're at, since warships are normally very, very quiet and they are very, very dangerous to be around in the event you're coming up to periscope depth because they are so quiet. But merchant ships, you normally can pick them up.

Once the briefs have been conducted, I will come up to 150 feet and our policy is to be at 150 feet for a couple of minutes to give the sonar supervisor

time to conduct a thorough search on that bearing. And then once he conducted a search on that bearing -- which is basically 240 degrees. We can't see behind us with the sphere. Once he's conducted that search he will inform me that he has conducted a baffle clear and hold the following contacts. Once he reports the following contacts, we will stay in that leg to get enough data so we can get a leg on those contacts so we can input into the fire control system. Which basically, our computer can tell us distance, range and of course, the speed of all contacts.

Once that is accomplished and we get a sufficient leg, I will maneuver the ship. Depending on if I maneuver to the left or the right will depend on where these contacts are and so I don't put them in the baffles if I can help it.

Then I'll maneuver the ship 120 degrees to look -- to ensure there's nothing in my baffles that weren't there before.

Once I conduct a baffle clear we do another sonar search and he reports any new contacts. If there are any new contacts then we'll conduct a leg. We'll maneuver again on these other contacts to make sure they're not close. Once I'm satisfied with conducting legs and knowing where all the situation -- where all the contacts are, I will -- if there are a significant amount of contacts, what we like to do on the ASHEVILLE, Commander Engles, I'll just call him up and said, Captain, sir, I hold six contacts. Request you come to the COM -- before I even get permission to go to periscope depth.

He'll come to the COM, look at the ASVDU, which is a screen of control, and I'll tell him exactly how I maneuvered. He'll look. With his experience, he can tell if they're close or not.

If there's one or two contacts, I'll just report those contacts. A standard report is: Sir, I'm on course 180, speed all ahead one-third, depth 150 feet. I conducted a baffle clear to the left with the following sonar contacts. Hold S27 bearing, range. This contact is in excess of 10,000 yards based on the baffle clears on the left drawing left. Also hold S26 bearing, range. This contact is on the right drawing right in excess of 10,000 yards based on the baffle clear. Request permission to proceed to periscope depth to whatever we had planned, not only with the

broadcast and so forth. And if he's satisfied, and again, depending on the level of experience of the officer on deck, and if there's one contact, two contacts, he may or may not come to control to observe the ascent to periscope depth.

And again, it depends on the experience of the officer deck and how many contacts we actually have. If we're in the middle of the ocean and hold no contacts, he probably won't come to the control and look at the ASVDU. But if we have more than one contact and we're near land, he will most likely come to the control room to look at the contacts.

Then I'll get permission to proceed to periscope depth. I inform maneuvering that we're proceeding to periscope depth to ensure that they don't call up on the microphone or announcing circuit to ask for something. It's very quiet in control. When I actually say raise the number two scope and when I say I'm proceeding to periscope depth, someone talks in control, they will be talked to later, saying that this is inappropriate, talking during periscope depth.

And the reason for that is because there's only two things that are said when the scope breaks the water after I've conducted my initial searches. One of the two things that are said is either there are no close contacts or emergency deep. Those are the two key words that I will say before anybody talks in the control room.

No close contacts gives the free will of everybody to report their contacts. If I say emergency deep, it's a key word to let everybody know in the control room that there is a close contact, which means we need to get down as soon as possible. As soon as I say emergency deep, I will immediately lower the scope. The helmsman will automatically ring up ahead full. And then I will automatically proceed to 150 feet. And that's our way to get as deep as possible as fast as possible to avoid collision.

And so assuming there is no close contacts, say no close contacts after conducting two or three sweeps, low power, and conduct an aerial search. And then the ESM operator will report no close contacts or I'm holding close contact bearing such-and-such. And then he is quiet. And then that is his defense search, the ESM operator.

Sonar will report any contacts that came up

during the ascent that we didn't know about before, which is very infrequent.

And then what I'll do is after I conduct the three searches, my next concern is the sonar contacts. I will tell fire control who is basically by right-hand man to figure out who and what is out there.

I will say fire control, train number scope to the bearing of Sierra 25, which we held, and so on. And I'll say train number two scope to bearing Sierra 25-Aye 325. You're on bearing 180. Come right X amount of degrees. And you'll copy down you're at 300, 310, 320, mark. You're on 325, turn left. Bear 327. And I'll sweep that area to look for that sonar contact.

Once I verify there's no contacts distant or not just there -- it's just so distant that I can't see him, I will go on to the next sonar contact. And then the round of contacts to make sure I'm clear with the sonar contacts, I will start my normal search to look for contacts which consist of 45 seconds of low power search and then 45 seconds of high power search in a certain quadrant. And I'll cover those four quadrants.

And again, it depends. With the commanding officer's discretion, we may change how we conduct our visual searches. For example, if visibility is less than 3,000 yards, which we've had in certain areas, it does us no good to do a high power search because if you're in high power, it just seems like you can't see anything. It doesn't do good for you.

So for the safety of the ship, if the ship were to come out at 3,000 yards doing 20 knots, we'll immediately go to a continuous low power search and just continuously look and continuously look around in low power to look for those contacts coming out. In those situations, we'll have another person stationed normally to look at the sonar screen. This is the sonar supervisor. Look. See if something is breaking out of the sonar system so we can quickly look at that bearing to see where this guy's coming from so we can make a judgment call to come right, come left, to avoid this contact.

And then once we -- and again, depending on what depth I order, normally in the daytime we're at 60 feet for stealth of the submarine. But if we're in a non-threat condition, we'll come up to 58 feet. And again, it depends on a lot of things as far as the sea

state or what we expect the sea state to be. If I can't see at 60 feet, I'm not going to stay at 60 feet to see a contact. The safety of the ship is paramount compared to getting a counter detected. And that's our concern. We're not looking for a lot of operating errors.

So I'll automatically come to 58 feet. If I still can't see at 58 feet because the sea state is so high, we'll come up to 56 feet and conduct searches. And I'll adjust the speed as necessary to maintain depth control.

Once we're at periscope depth and I've conducted all the searches associated with the sonar, ESM reports his initial defensive search and his offensive search, which is basically -- his defense search consists of threat emitters that are emitters with signal strengths that are really close that are really a threat to basically sinking the submarine in a threat environment or a ship borne ESM contact that is high enough signal strength that it can be a collision threat, you report that immediately as a defensive search.

Once he conducts a defensive search, he has five minutes to conduct an offensive search where he looks through all the different bands and reports all the different ESM contacts that he holds on his system, where it could be land based aircraft or a ship borne navigational radar.

Once that's complete, I conduct my business at periscope depth, maneuver the ship if I have any contacts to maximize the CPA of that contact, the closest point of approach of that contact.

So, for example, if I'm going like basically on a collision course or a zero bearing rate, I'll maneuver the ship and put it on a line of sight to open up range if he's not that close. And if he is close, then I'll just go deep and not have any situation where it will have too close of a situation.

Then once we conduct all the safety, basically, sonar and ESM, we conduct our business, we ventilate, clear the broadcast and so forth.

And like I said, there are a lot of variables of what we would do. And it depends on your sea state, depends on the weather, depends on how many contacts you have and so forth.

MR. ROTH-ROFFY: Okay. I'd like to explore

the issue of the ESM a little bit if I could.

When the periscope is breaking the surface, you are the first one to look through and evaluate the close contact situation. At the same time, the ESM operator is also.

What criteria does the ESM operator use in evaluating whether a contact is close or not?

LT. RONCSKA: It depends on the signal strength, the signal strength to him. He has a display. There's two different things that we have. One is the early warning detector. It is basically a processor that takes the ESM radar going into a sensor and it displays it in a void or a noise. And what I hear is the closer it is, there's -- what I hear is PRF. It's the pulsar repetition frequency. It's really quick. It's a higher frequency on the ESM or the early warning, what I hear.

If it's close, it's going to be louder, depending on the PRF. If it's low like -- un, un -- that's not a threat because it's land based. It's a very low PRF. If it's really high, like -- eek, eek -- that is a high PRF compared to the lower PRF.

The lower PRF means that it's a lower PRF, pulse repetition frequency. A lower pulse repetition frequency is associated with land based emitters where it had to send out this long signal and then has to wait for it to come back. It's land based, looking for things out on the water. A high PRF is a navigation or a fire controlled radar which you're trying to lock on and so forth. So -- a high pitch noise.

And also, the number of contacts out there will also give how much noise is out there.

What he is looking at is a single display and he uses his determination to determine signal strengths of 1, 2, 3, 4 or 5 based on how big the signal is.

For example, if this screen is saturated, he's going to have signal strength 5. If he sees side lobes, which basically he's close and if he sees side lobes, that's probably between signal strength three or four. So anything 4 or higher he's going to tell me right away I have close contact and I'll immediately, if I see a close contact, to -- or I might just go deep on his recommendation.

And again, it depends on the experience of the ESM operator. I've never ever had a close situation where I had to go deep on a ESM defensive search

because in my experience, I've never had a contact that close where I needed to take drastic action because of an ESM contact. And if I did, I'd see it before he reported that. But I'm not saying it couldn't happen. But that's what he's there as a backup.

MR. ROTH-ROFFY: Now I believe he also listens with headphones. Is that the same aural noise that the officer of the deck would hear through the emergency warning speaker or is it different?

LT. RONCSKA: He can select his on WRA or he can select early warning. He normally listens to the early warning.

MR. ROTH-ROFFY: His own WRA? What is that?

LT. RONCSKA: WRA is the processor that he uses. It's his own processing unit that he sits in front of. It's basically the system where he gets an input from the periscope. And then he can analyze the signals as far as the frequency, the pulse repetition frequency, the pulse width, and so forth. This is his computer that tells him what signal is that out there and tells him if it's navigation, is it airborne, is it land. But he listens to early warning basically.

MR. ROTH-ROFFY: You seem to know this procedure very well. Is this a procedure that varies from ship to ship? Could you kind of give us an idea if this is consistent or how these procedures are set up?

LT. RONCSKA: There's a NWP guidance which says these are the guidance of what you should do as far as optical NWP that lists -- you will do a defensive search. We recommend doing a defensive search. In a defensive search, you will look for, like I said, any collision threats or airborne emitters that potentially -- you know, a threat emitter. And it specifically says then you will conduct an offensive search.

So there's an NWP.

MR. ROTH-ROFFY: Okay. I'm sorry. I wasn't clear with my question. I was speaking more in terms of the overall procedures of going to periscope depth, how those vary from boat to boat and how they're prescribed.

LT. RONCSKA: There's a commanding officers' standing orders that was published approximately four or five years ago. Each individual CO had his own CO standard orders tailored how he wanted the ship to be

run with directives and so forth and he published his own CO standards. SUBPAC and SUBLANT came up with this joint or this standardized CO standing orders and went out to the boats and said this is what we'd like you to tailor so everybody's more consistent on how we do business. And in there it has periscope depth procedures.

And again, it's up to the commanding officer how he wants to run business. This is a guide. If he wants to change it, he doesn't have to follow it to the T. But again, this is a guide.

So as far as to answer your question, does each ship operate the same as far as going to periscope depth, the answer is no. It varies from ship to ship. And it's up to the commanding officer of how he wants his ship run. Some people do things not much different but very similar, as you'll see. And it varies from ship to ship.

MR. ROTH-ROFFY: You stated that when you're going at 150 feet, that you would proceed on various legs in order to get a better idea of what the contact situation was.

Can you tell us how long those legs would typically be and how much that would vary from contact to contact or what the variables are there?

LT. RONCSKA: Again, it depends. Because, one, if I had this contact previous and I know exactly what it's doing -- for the last hour and a half, it's a merchant traveling from east to west, and I've had this contact before and I can determined that. If sonar can classify it, it's the same RPM, same screw blade configuration, if that's the case, I'm not going to spend much time on it because -- (off mike).

If it's a new contact and he has a right bearing -- for example, when we go off the line he says the contacts on the right, drawing right and I just did a leg on him and the bearing rate didn't change significantly, I know he's not that close. And that is a comfort to me and to the captain to say this contact is not that close. He's fine. Especially if he's on the right drawing right.

Another indicator we have is DE-angles. We have different DE-angles where the sonar looks out. If the contact is present in all DE-angles, which means his sound path is coming in in all different DE-angles, the contact is probably close. And if you've done a

leg on him and you're not sure of where he's at, you may want to do another leg. If he's on the right drawing right and you're on a good course to not close him as far as if you have your speed -- if your course is not contributing to closure, depending on your course, you might be on the best course that you can be on to maximize the distance you want when you're actually at periscope depth.

So again, it depends on what course you're on and what his bearing rate is. There's other factors associated with if you want to do another leg. It's SNR. SNR is another thing you can look at if it's a contact that's fading in and fading out. If he's on the right drawing right, you can just use that.

But if it's consistent and -- again, another thing that I mentioned earlier is if it's a warship, classified a warship, a warship is very quiet. So if you pick up a warship, you want to do another leg on them to make sure he's not close because a merchant at 20,000 yards is like a warship at 3,000 yards.

So depending on what contact you're dealing with is also how much you want to know, how confident you are with where this contact is.

And like I said, it depends. It depends on a lot of variables of basically DE-angle, SNR, bearing rate, what course you're on, what shipping lanes if any do you expect, what type of contact it is, and so forth.

So, -- I don't know if that answers your question.

MR. ROTH-ROFFY: Yes. That gives us a lot of background. Could you maybe give a numerical idea? Could you do this is 30 seconds, to run on a leg and then switch over and do another 30 second leg or would it take an hour to run on these legs?

LT. RONCSKA: No, no. And you have to weigh in. The longer you wait on one leg then you're potentially giving another contact behind you that's coming up your stern. So you have to weigh the pros versus con. How long do I wait on this leg and how much do I want to polish the cannon ball, figuring out exactly what this contact is doing.

The longer I wait, here comes another contact. And again, he could be a potential threat. So the longer I wait and 150 feet to figure out what's going on, the more time while these other contacts

close in on me. And the best thing I can do as far as my best sensor is a visual search of the periscope.

So it depends. Normally, I'll go on a leg for two or three minutes. If I hold nothing, I will come over. And depending on what we're doing or local operating area, come around at left 15 degree rudder, and it will take me approximately two, three minutes to get to 120 degree course. And then I'll stay on that leg depending on how long it takes. And it could take me as little as five minutes to do the baffle clear and sometimes it can take me 45 minutes to do a baffle clear, depending on the contact situation.

And again, it just depends on what contacts you have and all the variables that I discussed earlier.

MR. ROTH-ROFFY: Now, doing the baffle clear, I understand, is to look behind you. Is that also -- are you at the same time refining your solution to your contacts that you hold? I mean, is that part of the baffle clears to consider something separate?

LT. RONCSKA: It's a secondary benefit. The primary reason you do a baffle clear is to look at your baffles to make sure that you don't have a contact that you don't see. For example, you come to periscope depth and you have this guy coming up behind you. It's a merchant that's doing 20 knots and you're doing 5 knots and all of a sudden you look behind you and you see his bow. That is the main reason for a baffle, to look behind you and make sure nothing's there.

But you do want to conduct a baffle clear to assist you in conducting ranging maneuvers on all the contacts you have. The ideal baffle clear is to have a contact on your left, say 30-40 degrees, and you want to conduct a baffle clear to the left to place this contact 80 degrees relative to you, or 90 degrees relative to you, and keep this contact out of your baffles. And by doing that, you can do a ranging maneuver on him, figure out what he's doing, and at the same time you clear baffles over on the other side.

And if you were to conduct a baffle to the right, this contact was on the left, now that would be in your baffles and you can determine what he's doing.

So while you're proceeding to periscope depth the sonar operator will also be alert to any new contacts or contact that's significantly breaking with a right hard bearing rate, which is indicative that the

contact is close. He will call it out to say we've got a close contact.

So to answer your question, you do your baffle clear to look at your baffle areas to make sure you don't have any close contacts. And then you also, to assist in figuring out what the contact situation is, you will conduct a baffle clear to conduct ranging maneuvers on contacts to figure out if their range and so forth. And if you're not comfortable with the range, you can conduct subsequent maneuvers after you've conducted the baffle clear. But you will always conduct a baffle clear.

Let me rephrase that. You will always look behind you in a situation to ensure you will not have anybody coming up behind you.

MR. ROTH-ROFFY: I'd like to get a feel for, as officer of the deck, how you receive information about contacts and how you evaluate that information, and to what extent you rely on the evaluation of other people's evaluation of contacts.

I understand -- we understand that the OOD can look at some of these displays himself and he also receives evaluation information from other watchstanders.

Could you kind of give me a feel for that?

LT. RONCSKA: Sure. There's certain trip wires that the control room party calls out to get your attention. One is being a contact with a zero bearing rate for a period of time. A contact with a zero bearing rate can be mean one of two things. One, it's very distant. It's so far, so distant that it's moving but it's so far away that the bearing is not moving at all.

The second consideration is that the contact is on a collision course with a zero bearing rate which is not what we want. So when they say contact has zero bearing for a period of time that will automatically get my attention and I'll go look at it. Once I look at the contact, I will look at it on the sonar screen. If it's a clean trace -- it depends on if this contact is real or not. It could be biologics. It could be noise in the water. What I look at on the screen is is it a clean trace, is it consistent, does it jump around. If it jumps around, it's a good chance it's biologic.

Then I'll go to the sonar seat and I'll

request sonar to classify this contact. The sonar will then look at the trace and then listen orally on that trace and he can hear; is it mechanical, is it biologics. And he will cut to this thing called CLASS. And then he can further analyze this trace and determine if it is actually a contact or not. So that's one way.

There's certain things that stand out when you stay at zero bearing rate contact for a period of time. That will automatically get my attention to go investigate this contact.

I will also be looking at the screen to see if the contact -- a big trip wire for me also is a contact with a bearing rate, significant bearing rate. Again, if the contact has a high bearing rate, that's a close contact no matter. It's inversely proportional. The contact has to be doing extremely high or a high speed and be further out. If it's a slow contact with a high bearing rate, it's really close.

So any contact that has a high bearing rate we will automatically look at and I will immediately inform the commanding officer that the contact is within 4,000 yards. And my intention is to open range, even if we're submerged.

Other things like I mentioned here earlier is the DE-angle. If I have this little out contact with a high SNR -- SNR stands for signal to noise ratio. If a contact has a high signal to noise ratio and he's coming in all DE's, that's another indicator that, one, this contact is really loud but most likely it's a close contact, a merchant.

And other things that we have is when we have towed array up and we always don't want to have the towed array out. But when we do, the contact is drawn up to towed array, which means he's either overtaking us or he's on a collision course. Any contact with any trace that's driving up the array is also another indicator for me to see what this guy is doing. I'll maneuver on him and see if he's close. Maybe he's paralleling our course; he's faster than us; and so forth.

Obviously, another trip wire is that the fire controlman tells that the CPA to this contact has a CPA of 2,000 yards in two minutes. We should never get in that situation. Either the solution is wrong or we're

so close we can hear him because of conditions, which sometimes occur. You can't pick him up until they're within 4,000 yards, depending on this environment layer and the other shipping noise in the water. Then you have to just maneuver as best you can to open up range.

The other trip wire tells me there's a contact solution with a CPA of less than 1,000 yards at a certain time. That will also give me my sense of where to look at. And I have a sonar supervisor looking, telling me every single contact; when we get a new contact; when he drops a contact; if this contact changes course and speed, which he determines from the trace changes. He will report that to me on the con.

MR. ROTH-ROFFY: Could you give us an idea of your subjective weighting of the various inputs that you're receiving, for example, from sonar, from fire control, anything else that you might be receiving that helps you to evaluate the contact situation.

LT. RONCSKA: Again, all these are objective. But it becomes more subjective as I get more and more information and there's things that come from the truth of what is out there.

For example, if I have more than one leg on a contact, I maneuvered on him. Then it goes from the objective to subjective. For example, if I perform three maneuvers on this contact, whether it's sophisticated sonar system and a sophisticated fire control system, I'm pretty confident of what the contact is doing. So I would say that would be subjective.

If I have one leg on the contact and the contact just comes in and I have a slight bearing period on the contact and fire control technician comes up with a solution that this contact is on a course of such-and-such, speed such-and-such, distance such-and-such, I'm not going to put any weight into that fire control solution until I maneuver. He can be close but you really can't tell if the contact is 10,000 yards away or 30,000 yards away because we just can't tell with the bearings and so forth. But I can use other tools to provide better confidence to this solution by looking, like I said, at the DE-angles, the bearing rate, so forth.

If he tells me a contact at 20,000 yards demonstrates this with a four degree or five degree permitted bearing rate, I'm going to tell him that your

solution is wrong and he'll concur with me. And then he'll update the system solution.

So to answer your question, can I ever get a subjective truth to what is out there by sonar and fire control, the answer is no. It's always somewhat objective and it just becomes more subjective as they get more information as time goes on.

And with experience is what I think is the most valuable thing that an officer on deck has, and the same thing with the commanding officer. Experience tells you everything. You've seen those contacts thousands of times. You've seen the DE-angles of what you can expect. You've seen probably the same merchant thousands of times if you're the commanding officer. And just by looks, sometimes the commanding officer can just look at the display and say after a maneuver this guy is a problem or this guy is not a problem.

So I think the most important thing is your experience of doing it over and over again is the most important thing as far as making it objective compared to subjective or subjective by subject.

MR. ROTH-ROFFY: Okay. I do have a few more questions but I do want to give the other people on the Board to ask a few questions. I'll pass to Mr. Bill Woody.

MR. WOODY: In the briefing before periscope depth, I think you talked about reports from the fire control coordinator or fire controlman on watch. What would you expect the fire controlman on watch to report to you when you're having a briefing for going to periscope depth? You've covered some of these I know already, but --

LT. RONCSKA: I know what I'll do is before I conduct a brief, I will look at what the contact situation is. If I have any close contacts within 10,000 yards or CPA of 2,000 yards, I will brief this contact Sierra 25 is at a range right now and he will have a closest point of approach of 2,000 yards at this time. And I will brief with the sonar supervisor and tend to come over here to the baffle clear to open the CPA to this value. And I'm confident that my maneuvers are accomplishing the solution that this is a safe course for periscope depth.

If all contacts are outside 10,000 yards, the fire controlman really normally does not say anything until we conduct our maneuvers. And then we'll refine

the solution. That's not saying that the sonar supervisor and myself and the fire controlman does not know what the solution is to the contacts. We just won't report them if they're not a concern at the briefing. We will brief the commanding officer later on all contacts that we hold, saying this is their course, speed and so forth.

But fire control, unless it's going to be a problem, he will not mention anything during the brief.

MR. WOODY: If you had just a few contacts with a low bearing rate and the fire controlman was trying different solutions, just a question on his initial setup. Would he normally by doctrine cite that the course would be a closing course, or would he --

LT. RONCSKA: It is submarine practice that the initial system solution should always be a closing aspect by contact, unless otherwise proven.

MR. WOODY: If he has a contact with a low bearing rate and he would generate a solution which had him coming in but it had not been tested. If it generated any kind of a particular range, would there be a time when he would report that to the OOD or would you go and find out? How would that work?

LT. RONCSKA: You're saying if he had a contact, when would he actually report it to the officer on deck that he has a solution on his contact?

MR. WOODY: Right. Because he could have a solution very quickly by adjusting the inputs.

LT. RONCSKA: True. And again, that depends on boat to boat. And it depends on the bearing rate and depends on slow bearing rate.

We had this contact for a couple of minutes and fire controlman knows that a couple minutes solution on a contact that we only had for two minutes with a relatively low bearing rate, the confidence in that solution is very, very, very, very weak. And he knows that the officer of the deck knows that.

So if he were to report that with a couple minutes of data, the officer of the deck would know this isn't a very good solution. He would look at him and say, I know the truth of this is not very good. So I don't think he would report it.

But if he had a contact for 10 minutes and it starts stacking and his confidence went up, he would then report it to the officer on deck. And again, it depends on bearing rate and it depends on boat to boat

what point in time it would be reported.

And again, the officer of the deck knows what contacts are out there because his sonar supervisor reports all contacts that are gained. And it like branches off. The sonar supervisor reports to the CON that I gained a new sonar contact. The officer of the deck takes that information and stores it in his head and looks up at the contact that is gained. At the same time, the fire control technician also looks at his screen and he can see where the contact is placed in the ETA, which is an automatic track caller. And he also keys into what he says, the sonar supervisor, that, hey, I've got a new contact. At that time, he automatically starts tracking.

So, it's not like he's keeping something secret from the officer of the deck if he doesn't tell him because the officer of the deck knows that there's a contact out there and the officer of the deck knows that a one-leg solution is not very good.

For certain things, like I said, the fire controlman will tell the officer of the deck if all of sudden you start generating a bearing rate, starts breaking. He'll automatically say, officer of the deck, this contact is breaking. I believe he's closer than we thought.

He'll also tell the officer of the deck after a leg with this contact. If the officer of the deck doesn't go over to the screen and say, hey, what's the solution on this contact, he will also tell the officer of the deck after a leg when he has more confidence.

MR. WOODY: You mentioned a couple of terms and I'd like to explore the magnitude of them. You say starts developing a bearing rate. What would be the threshold of say developing a bearing rate be for one that's been fairly steady?

LT. RONCSKA: If you had a right point five, right one degree bearing rate and you could see it on the screen over time and it starts -- the slope of the bearing rate starts to increase.

MR. WOODY: And the term breaking, does that have a particular meaning?

LT. RONCSKA: If you were to look at a graph of bearing rates, it's a term that's used for submariners. If you had a confidence slope and all of a sudden the slope starts changing and you could see it starting to change --

MR. WOODY: Started to change.
LT. RONCSKA: -- magnitude wise as far as becoming more steep, that is a term called breaking.
MR. WOODY: Breaking.
LT. RONCSKA: And depending on how severe it's breaking tells you how close the contact is.
MR. WOODY: I see.
LT. RONCSKA: But any break of a significant magnitude is like a thing that should notify you that this contact is closer.
MR. WOODY: Okay. In trying to find out about what's going on in the fire control, what the fire control is doing, do you walk over to his position and look over his shoulder, or how do you acquire that? Or does he make reports to you? Would you discuss that?
LT. RONCSKA: And again, it depends on the submarine and how they like to do business. I've done it both ways. One fire control report a solution at Sierra 25. Fire control display the solutions at Sierra 25. Take a walk over there because he can display another solution to another contact or he can look at the contact. It depends on how you do business. You can do it either way. You can tell him to report to you, you can go over and look at it, or you can even look at the ASVDU and mentally the officer of the deck can give his own solution.
Like I said, if you maneuver and the contact's bearing hasn't changed, it was at right point one, right point two and you took all your speed across the line of sight out of -- basically went across the line of sight and the bearing rate still hadn't changed, just by the mathematics of the situation, of the formulas, you know that this contact is not close.
MR. WOODY: Could you just sort of as a simple matter, explain to us the different displays. If you were to go over to the vicinity of the fire control division's various screens, what different displays would you expect to be up and running with a contact?
LT. RONCSKA: There's one display where it's called stacked dot. Each dot provides you where it comes in from sonar over a period of time and each stack is these dots. And from those dots, it's an error with bearing rate or bearings. And basically, the system puts in a bearing that the system thinks the contact's bearing should be. And then when the actual bearing comes in, you'll get an error. And then he

adjusts his solution to make his solution public, like what the actual bearings are doing.

MR. WOODY: And we've had the opportunity to see that one. So I think you've refreshed us very well.

What would be another display that you'd see?

LT. RONCSKA: Another display is called an ops summary.

MR. WOODY: Okay. Ops summary.

LT. RONCSKA: Ops summary basically is a geographic display of the ship, which is in the center. And all the contacts, they're into the system solution. And the fire control solution or system will be displayed on a thing called ops summary. Basically, a list.

Like for example you have five contacts, and assuming that this is north and you had a contact at 330 with 10,000 yards --

MR. WOODY: Like a maneuvering board type presentation?

LT. RONCSKA: Exactly. It's a maneuvering board.

MR. WOODY: And is there another type of display?

LT. RONCSKA: There's a time bearing mode. You can call up the bearing history of a specific contact over a period of time. So if you went to a time bearing mode for Sierra 25, all it does is it's a graphical display of what the bearings are doing.

MR. WOODY: Is that where you'd see the break that you described a few minutes ago?

LT. RONCSKA: Yes, sir.

MR. WOODY: And any other displays?

LT. RONCSKA: Other than that, there's a line of sight mode which is used for a CPA. It basically gives a line of sight diagram for the two contacts that concern you and the contact that you have on the screen.

What is useful with this screen is it can give you -- it tells you your closest point of approach. And what this does for you is that you can go through a trial mode where you can maneuver the ship. Basically, it allows you to trial your own ship into another course and speed and it will update you on what the closest point of approach would be if you did maneuver the ship to a new course or speed. And it's

like a computer program that tells you if I'm coming to the left at 50 degrees and change the speed to 10 knots instead of five knots, the contact with as good as my system solution is, will pass with a closest point of approach of X amount or will change by this amount.

MR. WOODY: Any other displays that you'd expect to see?

LT. RONCSKA: No. Those are the -- when you're going periscope depth, those are the main screens that he utilizes.

MR. WOODY: If you went to periscope depth and let's say you had a solution that was generating -- you assumed it was incoming and it was generating maybe more than once and he cranked it back out -- this is a hypothetical question. If you came to periscope depth there was a look around and no contacts were spotted, would you expect the fire controlman to do anything different?

Let's say it was generating into something under 5,000 yards, for example.

LT. RONCSKA: What we normally do -- and again, it depends on the ship. This isn't written anywhere. If we have a contact within 5,000 yards by the fire control solution, after I say no close contacts, he will automatically request that I look on the bearing of the contact that was at 5,000 yards.

He'll say, office of the deck, question. Will you look on the bearing of Sierra 25. Sierra 25 bears 325. You're on 280. Come right 60 degree to 325, or whatever. And I'll automatically -- like I said, after I get periscope depth, my next concern is to start looking around the bearings of those contacts.

MR. WOODY: If you look at the bearing requested by the fire controlman and you didn't see anything, what would he do then? Let's say again that he has this target that's generating into 5,000 yards without a really good solution.

LT. RONCSKA: Right. Again, it depends. If he believes that this contact is 5,000 because of the bearing rate, either it's a submerged contact or its biologics. And again, it depends. If he strongly believes with his indications and his experience that there is a contact out there, he might call the officer of the deck and again and say you need to look down at this. But if the office of the deck looks down at the bearing and he doesn't see anything --

MR. WOODY: Let's start with the first scenario. Assume it was classified by someone as a surface ship and it's not seen. What would be his action in that case?

LT. RONCSKA: The officer of the deck or --

MR. WOODY: The fire controlman. In other words, the hypothet is that it's been classified as a surface contact. The OOD has taken a look around and the fire controlman has a solution that's generating in 5,000 yards which has not been refined.

LT. RONCSKA: And again, that depends. If we're at a depth where I'm getting wave slap, I will tell the dive to get up as far as I make my dive shallower and get out of it.

MR. WOODY: And how shallow would you go?

LT. RONCSKA: 55 feet shallower.

MR. WOODY: 55 feet.

LT. RONCSKA: And again that depends on each individual ship. And if I went to 55 feet and I still couldn't find anything and the fire controlman thought that that contact was close -- and again, this isn't written anywhere. What we like to do on our ship is we have a CEP plotter, a contact evaluation plotter. And that's another thing we look at.

I'm sorry. Just to digress. But you asked me what else we'd look at.

MR. WOODY: That's quite all right because we've had a lot of very fine education and we've seen the paper CEP plotter. So if that's what you use, we've seen that.

MR. ROTH-ROFFY: And we've seen the electronic CEP plotter also, which I'm not sure if ASHEVILLE has.

LT. RONCSKA: No. We still have the paper.

MR. WOODY: Paper. All right.

LT. RONCSKA: The CEP plot is very important. It tells you, especially -- it gives what course you're on; if the contact is on the left drawing left or on the right; and if you can see over an hour, this contact has a slow bearing rate to the left, then it's probably a distant merchant. But if this contact suddenly appears and he starts breaking by CEP, that's another indication that you need to watch out for this contact. And also gives you a good course to steer and see if you have three contacts over here and you're on this course, they're all drawing left and you're on the left, you can tell you need to come over to the right

by looking at this visual CEP plot to help you out.

And also the CEP plot is there to help the officer of the deck out. And to get back, what I would do if there's a contact, fire control is serious about this contact is close, I may direct the CEP plotter to say CEP, report in two, three minutes.

We have a thumb rule that if the contact is -- whatever the contact's range is in yards, subtract two. This is the period that we need to look at the contact. Which is not irrelevant in this scenario because I don't hold them visually, but in this case if I didn't hold this contact and fire control believed that this contact is out there, then I would say CEP, report when two minutes has expired. I want to train the scope again to this bearing where this contact is.

And the CEP would say, mark, two minutes. Aye. And he would have a stopwatch there and two minutes later he would say office of the deck, two minutes has expired. Request you look down the bearing of Sierra 25. And again, I'd look down the bearing of Sierra 25 because I know that if I can't see him, then the only thing I can do is continue my search to look at a later time -- at a specific time that I know is safe to the ship. Like for example two minutes. There's a three minute rule. I don't know if you're familiar with the three minute rule. We have a thumb rule. It's very accurate that if you do, say, for example, 10 knots, in three minutes you'll travel 1,000 yards. So you have to take in his speed into consideration and our speed into consideration.

So for example, if he's doing five knots and you're doing five knots, it's 10 knots. And in three minutes the closure rate will be 1,000 yards. So I know if I look down the bearing and I can't see anything and I have sufficient high look and visibility is unlimited. I know the contact is not 1,000 yards away. So in two minutes, I'll look down the bearing head in two minutes because I know 2,000 yards is all he can close if he's going to do it in five knots.

There's all these variables that go into play on how often you look down the bearing. And again, it depends on visibility, sea state, what contact is out there. Is it a merchant, is it doing 20 knots, is it a fishing doing five knots, is it a sailboat which you can't really see or is it a small fishing boat which is

hiding in the waves. Like I said, the sea state. It can be hiding in the waves.

I don't know if that answers your question.

MR. WOODY: I think it was a very good answer. I think it was very elucidating.

You missed the CE plot. You mentioned the sort of presentation that you have in the control room, the ASVDU, I believe it was pronounced, if I said that correctly.

If your ASVDU were out, what compensating movements would you do or would enable you to differently. Let's say you're in a local op area and --

LT. RONCSKA: We wouldn't feel -- I can't speak for my commanding officer what he would do. What I think would be done is a heightened sense of -- you'd have more of a heightened sense of what contacts are out there.

As far as what we would do different, we may station a person in sonar. I couldn't answer that.

MR. WOODY: You mean station an officer in sonar or an extra person in sonar? Because you've got a supervisor and a couple of watchstanders in there or something like that right now.

LT. RONCSKA: Yes. We have a supervisor. I'm not saying we would. I doubt it now that I think about it.

MR. WOODY: Have you ever had this experience?

LT. RONCSKA: No.

MR. WOODY: Okay. Maybe it's not a proper question then.

LT. RONCSKA: We've never. I know if the ASVDU were out, we have our CID's for -- which are sonar displays. It's basically the same thing as the ASVDU. But we have two separate sonar screens in the control room. We had that luxury. We had two different displays. (Off mike.)

MR. WOODY: I think you're doing very well. I was just trying to see if it was something relative to your experience.

LT. RONCSKA: It depends. If you were to look out the bearing, if you were already aware at periscope depth and you were confident out there.

MR. WOODY: Well, say you hadn't been and you were getting ready to go up, would you make more use of the say CEP plot, for example?

LT. RONCSKA: Sure. And it depends on if -- I would ask specifically. I would look at the screen. If I could see from the time bearing what the bearing rates are doing and what the contacts are, I'd get -- and again, it depends. If I was in the middle of four contacts, both contacts were two on the right drawing right and two on the left drawing left and they went like this from sonar, I would feel pretty good going to periscope depth.

And again, it depends on what contacts you have and what's their SNR. And I may look at the sonar. I may not, depending on the situation.

MR. WOODY: If you had a couple of contacts in one direction and the bearing rates were small or appeared to be small and you want to come to periscope depth, what would be the considerations of heading toward them, away from them or maybe putting them on your beam.

Say there are two in the same general direction traveling north, for example, to make it easier to understand.

LT. RONCSKA: And again, it would depend on if I did a maneuver on them and the contacts are very distant. And it depends on where I'm going. If I could, I'd probably maneuver the ship to place a ship in the line of sight and put my speed out of their line of sight, which means I'll move the ship or I would not put any of my speed to close the contact.

MR. WOODY: And another is to put them on the beam, perhaps, would be an example.

LT. RONCSKA: Sure. If I was not confident or if I was -- like I said, if they were within 5,000-6,000 yards and that's what the decision came out and we need to get to periscope depth, I'd move the ship to open range. So it depends. If the contacts, I didn't maneuver on them and they're outside 20,000 yards, you're on a safe course. I would maneuver the ship, not point them, but I'd probably get off their beam a little bit of 30 degrees.

MR. WOODY: Thirty degrees on your bow?

LT. RONCSKA: Thirty degrees. Probably the least I would go is less than 20 or 30 degrees, in there somewhere. I don't particularly like to point contacts.

MR. WOODY: You'd come to a course say of 020, 030?

LT. RONCSKA: 030. Which means half of my speed is in line of sight. Which means half of my speed is going towards them. Anything above 30 really takes my speed out of line of sight. So anything less than 30, pretty much all my speed is contributing to the closure rate.

MR. WOODY: Yes. You answered a question a while ago about the type of signals you hear from ESM. Does the device you have in the control room, does that enable you to hear the same kind of signal that the ESM operator is hearing?

LT. RONCSKA: Yes.

MR. WOODY: Okay. In other words, it's not an alarm. You'd hear the same signal.

LT. RONCSKA: Right.

MR. WOODY: You mentioned that one of the things you do in preparation for coming to periscope depth is to turn the volume up on the speaker.

LT. RONCSKA: It's right by the periscope. There's a little gray speaker with a little knob. What you do is before you go to periscope depth, you test it. Basically, you say ESM CON or ESM CON testing -- and he would say CON ESM aye. And as soon as the periscope is fully raised --

MR. WOODY: What would you say again? The first thing you'd say.

LT. RONCSKA: It's ESM which is the ESM standard on the intercom. ESM CON testing early warning. And he'll say CON ESM aye.

MR. WOODY: Okay.

LT. RONCSKA: And there's a test button that you can press sending a pulse signal into the system to make sure it's working. It's a beep. And then I'll hear it and the control, he'll hear it.

MR. WOODY: Is that a pretty strong signal or does it depend again on how much you have the volume turned up.

LT. RONCSKA: It's totally dependent on the volume. I could turn it up all the way. It's a noise signal, a beep.

MR. WOODY: Once on the surface, would you have any custom of adjusting the volume once you're on the surface? Say you go to periscope depth and no close contacts. Would you then adjust the volume of the particular speaker or whatnot?

LT. RONCSKA: Again, it depends on my comfort

level of looking at all the contacts and knowing there's no close contacts. And then if it was annoying, distracting me from doing what I need to do as far as relaying orders to different watchstanders because the thing is turned up so much that it's distracting, I would turn it down. But I would turn it down to a certain level where I could still hear something.

Because from there, my primary sense now is the visual. The visual should be true of what's out there. Sure. Things can be hiding. I also have my backup with the ESM operator.

We do shut if off once we start or energize our radar. But this is 10-15 minutes, 20-30 minutes after the surfacing procedure.

MR. WOODY: That's a later question I had but as long as it's come up, you're the same class of ship as the GREENEVILLE. How long would it take you to -- let's say you've come to periscope depth. How much more time would it take you to put the mast up and take a sweep?

LT. RONCSKA: If we're just going to periscope depth, we never ever raise the radar mast unless we're in a situation where -- I only know of one time we ever raised the radar mast from a periscope depth and that was during an exercise with surface vessels so we could give them a cuing order. But you would never ever do that because, one, you have to lock open the lower bridge access hatch. There are speed limits associated with the radar mast that you'd worry about exceeding.

And also, it's just too time consuming. And the benefits of raising --

MR. WOODY: Well, yes. We've heard about how you have to open the hatch and remove a pin and then you have to raise it and you have to have your speed low. But time wise, are we speaking of five minutes, 10 minutes or 15 minutes to take a couple of sweeps?

LT. RONCSKA: We're talking probably 20-25 minutes.

MR. WOODY: Twenty, 25 minutes.

LT. RONCSKA: Twenty minutes if you want to do it. But again, we don't do that because the pros versus cons of having the radar up compared to having this extra hole in the ship of the water protection hatch. The commanding officer is very avid about having hole openings while we're at periscope depth --

if we ever collided with somebody, if we ever went for a dive procedure, anything that deviates the ship being at its highest integrity is not -- what we're basically doing is looking at the pros versus cons. -- and we actually have good visibility with periscope up, it's not -- looking with the radar is not as beneficial as keeping the ship with as high integrity as possible.

So we would never in my experience, 11 years -- raise the radar mast at periscope depth because of the pros versus cons.

MR. WOODY: Thank you very much. Appreciate that.

If you want to take a -- you basically come into 55 feet to take a look around.

MR. ROTH-ROFFY: Just a minute, sir. We've had the good lieutenant here talking for an hour and 20 minutes. I need to ask whether he needs a break at this point.

LT. RONCSKA: I'm fine. If you guys want to, take a break --

MR. ROTH-ROFFY: Okay. Let's take a couple of minutes then.

(Whereupon, a recess was taken.)

MR. WOODY: You mentioned earlier on that there were different kinds of procedures; that everybody has the same plan but it's modified by the CO.

When you come to a new ship or you get a new CO, how long of an adjustment period are you looking at to get in synch with the new guy?

LT. RONCSKA: A couple of watches. Like, for example, when a department head comes on board. After being submarine qualified on his previous ship, just a couple of watches to know the pet peeves of the commanding officer and some things that are really sometimes not written down and it's just the way he likes to do business.

And I can give you some examples that aren't written.

MR. WOODY: Please.

LT. RONCSKA: My commanding officer now, Commander Engles, has specific things that he likes to have accomplished prior to executing the evolution that are not written down. For example, you can see how subtle it is. When you start your initial search on

the periscope and you're going around, if you're at 58 feet and you get a wave slap, you can see the wave coming and it's just coming right at you, and you know you can't see past the wave. There's one or two options that you can continue -- or can do.

You can continue on and just hopefully you'll catch it the next time you come around during your three sweeps or you could stop and wait for that wave to go past. He likes -- he specifically told all the officers to wait until that wave goes past. Wait until it passes, then look down that bearing and then continue on with your search.

And the reason why he likes to do that is by chance, you can go around the very same spot three times and there is a wave, the periodicity of the waves. In this very same spot, at this very same time there's a wave and you can't see down that bearing.

So that's one thing that you'll never find written anywhere; wait until the wave passes until you continue your search. And just little subtle things like that.

You could argue that while you're waiting there for that wave to pass you're not conducting your search or if there is a close contact you're delaying your chance of seeing this contact that's coming up behind you while you're waiting for this wave. But again, the pros versus cons. If you don't look down the bearing then maybe, like I said, the next time you go over that there may be a wave there again and you can't see what you've got coming.

So there's really no right or wrong answer. It's just the way -- how different ships conduct their business.

MR. WOODY: And you can get in step with these requirements in a couple of months or so.

LT. RONCSKA: Right.

MR. WOODY: Does it make a big difference whether you're the new guy coming to the ship or the captain is the new guy coming on the ship?

LT. RONCSKA: It's the captain. Normally what I've seen in my limited experience as far as work, it's the captain. But what happens is he will relieve. And then he won't say anything until he sees how the ship is running its business. And if it's been successful before he's been there, he's not going to automatically start changing things.

During his relief process he'll go and observe what he likes, doesn't like. And after probably a week prior to right after, he'll come out with changes to the standing orders and brief the wardroom on these are the things that I like that we do and these are the things that I don't like or would like to do better or change because of these reasons. And that's what exactly the commander has done --

And again, they are subtle. It's nothing that from each commanding officer to the next commanding officer that you violate procedures, what it specifically says in the book. For example, during a surfacing procedure or a submerging procedure, we follow that to the T, as far as we won't deviate from that. But you can't write down every single contingency of the procedure, like how do you look. If that was the case, the procedures would be 10 feet high with all the procedures on the ship. You just can't write down every possible thing. There's too many variables.

MR. WOODY: I certainly appreciate that.

You mentioned earlier on, too, that when you come into periscope depth you would inform the captain. And sometimes, depending on the number of contacts, you might even ask him to come to control.

What does the captain look at when he comes into control? If he does come in for some reason, is there anything he looks at?

LT. RONCSKA: The first thing he'll look at is the ASVDU displays from sonar and so on. And he'll look. And there's a time history on there that he can see what the ship has done as far as maneuvers to the right, to the left. It shows that on the display.

And I know when he looks at the ASVDU, one, he's looking for the 4DE's, if there's a contact -- that was close. Another thing he looks at is if the contact is on the left drawing right or on the right drawing left. That's something he's really not comfortable with and neither am I. And it depends if the officer on deck maybe is confident because he didn't ring him -- distant. But even the contacts on the left or on the right, he may say I want you to come across line of sight on this guy and put him on the right drawing.

So he looks for what respect does the contact on the left draw left --

He'll also look at CEP over time. And if he's still not comfortable with the situation, he may go, like I said, to CEP or to the fire control solutions on the contact to see how the dots stack and -- get more confidence in that situation.

If he has a towed array out, he'll look at the towed array and see if there's any contacts there.

So that's basically what he looks at.

If I may digress again, there's other aspects that you need to look at when you go to periscope depth --

MR. WOODY: (Off mike.)

LT. RONCSKA: Other things, especially for a navigator to look at, which are hazards to navigation. Again, there's pros versus cons. What you can see up there is Penguin Bank. If I was near Penguin Bank, I would not want to continue on a course very long because it's pointing me right towards Penguin Bank.

And again, if there's a contact that is on my beam and my only course that I can go is to keep this contact on my beam is north towards Penguin Bank, assuming that I'm south of Penguin Bank, I may then, depending on how many maneuvers I did on this contact, how close this contact was, I would weigh in to point this contact more because of how confident I was in the solution, rather than point a shoal spot that I can potentially ground the ship.

So there are other factors. Those other factors are where is the position of the sun because when I'm doing a periscope search, I'm looking directly into the sun and directly in the sun is reported a contact, a bearing of a contact that we have holding on sonar. Again, I'm not comfortable looking directly into the sun because it blinds you and sometimes you can't pick up contacts that are directly into the sun. So I just wanted to add that as far as the other factors. And you can see there are so many different variables that there's no right answer exactly what course, what speed, how long do you look. Just so many variables when you go to periscope depth and while you're at periscope depth. And again, experience is --

MR. WOODY: We certainly appreciate that stealth is important to a submarine. There might be other circumstances whereby you want to do a more safety look around for some reason; bad visibility, whatever, traffic in the area.

Can you describe coming -- you say you can define a piece of that. Now that would be just about -- would the top of the sail be coming out of the water?

LT. RONCSKA: The sail is at 50 feet. If --

MR. WOODY: So five feet under?

LT. RONCSKA: Right. So assume you're at 55 feet. The sail is five feet underneath the ocean and the scope is approximately six, seven feet --

MR. WOODY: Could you come to 50 feet if you chose to?

LT. RONCSKA: No. 50 feet is when you broach --

MR. WOODY: Which is contrary to remaining undetected.

LT. RONCSKA: Right. And then when you broach, it's hard to get back down.

MR. WOODY: Tell us about how hard it would be to get your ship down if you did broach?

LT. RONCSKA: It depends on suction forces. Once you're up, it's hard to get the ship back down because of the suction forces of the sea on the big long shell back of the submarine. It just keeps the submarine up there. So you have to increase speed, get a down angle on the ship. And then you potentially -- the diving officer could over compensate and then you leave periscope depth and you won't stop at a specific depth.

And then you're in this situation where it's unsafe because the periscope is underneath the water. You can't see what's around you because the diving officer can't maintain depth because he put all this water in to over compensate for the suction forces. Then you're just doing the -- you're going back up, broaching, coming back down.

So it's good to have a buffer from broaching the ship because then you run into depth control problems. And broaching the ship at 50 feet really doesn't buy you much.

We have this formula. It's called the height of eye. It gives you distance to the horizon of how far you can see. It's concerned for the submarine because with the scope at 67 feet, if you're at 55 feet, you probably -- you have about eight feet of scope. You could do the math. 67 feet is the top of the scope optics and say 60 feet, you have seven feet of scope exposed. And then the equation is distance to

the horizon is the -- of the height of eye times 1.12.
So if you have five feet exposed, which is normally at 60 feet it's 58 feet, say even 67 feet, you can see the horizon at approximately 3-4 miles. So if you increase the scope slightly, which is good for the waves. You can see above the waves if someone is hiding. But maybe another mile or two miles after that, anything that close, if he's within five miles, which is 10,000 yards, you should be able to see him. And then you've got the benefit of if he's a merchant ship, then he also contributes to the height of eye on the other side of the horizon. Because if there's he's a -- merchant, you'd see him for 23,000-24,000 yards away.
MR. WOODY: I think the one question I didn't hear answered is in coming to periscope depth, like say 60 feet, which I think was your first example, I know this depends on speed, but speed allowing, what depth would you start putting the scope up.
LT. RONCSKA: You raise the scope at about 150 feet. The procedure is you raise the scope. That's when you test the ascent. And the officer on deck trains the scope directly ahead of him and he basically looks in front of him while you're proceeding to periscope depth.
MR. WOODY: I see.
LT. RONCSKA: Soon as the scope breaks the water where he can see without wave slap, he'll start his rotation around to look for close contacts.
MR. WOODY: You mentioned that warships are often quieter than a merchant ship. What characteristics do they have that makes them quieter?
LT. RONCSKA: Just their design. Their design as far as propellers. They also have some mechanism that makes them a lot quieter that sometimes they can deploy. But just their design of being a warship. They make them as quiet as possible so that enemy submarines can't detect them.
So just by their sheer design of how the propeller is and the machinery.
MR. WOODY: Does the design of the propeller of a warship make it difficult to get say screw blade information?
LT. RONCSKA: It depends on the distance.
MR. WOODY: Is it a matter of just how quickly or how far you pick them up?

LT. RONCSKA: How far.
MR. WOODY: But if you pick them up, basically you can get the information.
LT. RONCSKA: And sonar usually classifies the contact because they can hear the contact and they are trained on what a warship sounds like, especially if it's quiet.
MR. WOODY: Are there any fishing boats or other commercial vessels that are hard to get screw blade information on typically.
LT. RONCSKA: Not that I'm aware. Sometimes when you ask for class information, just because it could be the distance of the contact, the aspect of a contact, and like I said --
MR. WOODY: By aspect, what do you mean? Pointing at you?
LT. RONCSKA: If the contact is pointing at you, then all the noise with the screw blade is away from you and the conditions are right, you may not necessarily get screw blade information just by the geometry of the contact that you're trying to analyze.
MR. WOODY: We did talk around taking a leg. And you say it depends which we sort of can understand that. If you had a bearing, let's assume one of point 5 which you mentioned a while ago, what kind of a leg time wise would you require to analyze a contact that was bearing out there at a small bearing rate?
LT. RONCSKA: Again, it depends on the geometry, initial geometry. If I was pointing a contact, just ended up pointing him and I picked him up, then I would maneuver to get some of my speed out of the line of sight, across the line of sight, changing the speed across the line of sight, which is how we determine range. It's called the -- range.
Once I did that, it depends on how far I needed to go. It shouldn't take more than a couple of minutes. After I did the initial leg, then I would set up a new leg --
MR. WOODY: The other questions I have are sort of different questions. You're ops. Would you be the person that the captain would come to or the exec would come to to say we're going to have visitors coming on the ship? Would you be the person that would be setting that up or would that be a different officer?
LT. RONCSKA: It depends. For example, we did

two dependents cruises during my time on board and --
MR. WOODY: Do you remember the size of the parties you had?
LT. RONCSKA: Probably 40 one way, 35.
MR. WOODY: 35?
LT. RONCSKA: Guests.
MR. WOODY: Guests. This is one party?
LT. RONCSKA: Right.
MR. WOODY: What evolution do you do for 35 people on board?
LT. RONCSKA: If it's a scripted day, we'd go out and we'd allow guests to go to the bridge with the officer of the deck, go up and see the sail before we submerged.
MR. WOODY: Wait a minute. Have you had any visitor days on the ship you're on now?
LT. RONCSKA: Yes. The dependents cruises. What we do is we take the guests on board and we would go to Maui and we'd anchor off the coast of Maui for three or four days. And then we'd take a separate group and take them back four days later.
So basically what we do is get underway early, go out, submerge the ship, transit to Maui, surface, and drop the guests off in port at sunset. And then the ship would be anchored there for three or four days. And then the next group of people would come on in the morning and then we'd do the same thing back.
We'd surface, transit, submerge, submerge, transit, surface again and we'd come back.
MR. WOODY: Would you do angles and dangles for them?
LT. RONCSKA: We'd do speed turns. The whole evolution would be the in surface. And we'd allow guests come to surface, let them sit up -- under supervision, let them sit at the helm on surface. And then when we're ready to submerge the ship, we'd secure all people as far as all the guests, as far as the stations. We're doing, you know, not normal -- not easy evolutions. Just steering the ship.
Then we'd submerge the ship and then we'd do a transit. And depending on what the meal time was, we would do angles and dangles and we'd do high speed turns.
MR. WOODY: Have you ever had a daily op where you took people out and brought them back to say Pearl Harbor the same day?

LT. RONCSKA: No.
MR. WOODY: You talked about transit. How long does it take to transit coming out of Pearl Harbor and going to Maui?
LT. RONCSKA: It's about an eight hour trip.
MR. WOODY: Does your ship have any kind of a bill or commanding officer instruction for handling visitors, what anybody shall do?
LT. RONCSKA: There's no operating procedure for guests or anything on board. We did have a temporary standing order from the commanding officer that would discuss precautions and things associated with guests. For example, where they can go. They wouldn't be allowed in the radio room. What they could see; what the ship is telling them; where they could film, and just the itinerary of where we would take the guests and when, what time, what evolutions we would conduct.
MR. WOODY: Are you aware of any fleet or force instructions about guests that would be applicable to a submarine?
LT. RONCSKA: Other than we request guests on board through a message that we send -- for example, for a dependents cruise or a target cruise. And it comes back approved. And there's a certain format that you have to put, how many guests you're going to have and where you're going and how long. The only restrictions that I know of for a dependents cruise is that you can't have children under the age of 12 and you've got to have guests off by sunset, things like that.
So there are some restrictions. But as far as restrictions as far as down in the grass of what you can do with guests on board --
MR. WOODY: And what kind of instructions are these?
LT. RONCSKA: They're just in the local operating COMPORT. And very few as far as --
MR. WOODY: This would be COM SUBPAC OP order?
LT. RONCSKA: 2000.
MR. WOODY: I want to thank you very much. I think this concludes most of the questions I have unless I think of something. And I do appreciate it.
LT. COMMANDER SANTOMAURO: I really only have one question for you. This is Lieutenant Commander Santomauro.

If you had just come to periscope depth and you had your ESM operating, have you ever in your experience had a contact operating in maximum where it's on your radar, say 2,000 or 3,000 yards away and not heard on your ESM?

LT. RONCSKA: No. Not that I know of. I would assume if the radar went out, regardless of what range scale they were in, you would detect it.

LT. COMMANDER SANTOMAURO: It would be pretty amazing that the guy would be operating in say a 12 mile scale and maximum radar is 2,000-3,000 yards away and not hear him on the ESM if it's functioning properly?

LT. RONCSKA: Right.

LT. COMMANDER SANTOMAURO: That's almost impossible, I would think.

LT. RONCSKA: I would assume so. It doesn't make sense why, if they were in a long-range scale, you still wouldn't be able to hear them. Because the waves are so deep emitted from the platform that you still would detect that wave.

MR. ROTH-ROFFY: Yes. Tom Roth-Roffy. I'd like to follow up on that point just to clarify a little bit.

It would probably be detected but at what signal strength? At say signal strength 4 or 5, how far out would you expect him to be under the circumstances?

LT. COMMANDER SANTOMAURO: My personal opinion, I would think that you would get a strong 5 at 2,000-3,000 yards away. But in your opinion, what would you think?

LT. RONCSKA: I would assume if it's 2,000-3,000 yards away, you'd pick them up at a high signal strength.

MR. ROTH-ROFFY: And I just wanted to clarify that. I mean, you said that you probably would pick it up.

LT. COMMANDER SANTOMAURO: That's the biggest question in my mind. If you have a contact that close, you ought to be getting side alarms, the whole nine yards and you ought to have a strong steady tone and it should be more than just a distraction coming out of that speaker, I would think.

LT. RONCSKA: And you'd have two independent; the early warning system that you hear on. The CON is an independent system of what he can see in his WR8

system, independent. Even though he can hear the same thing that you hear on the CON.

If both stations do not hear that radar, I would assume if you checked out the system and it was working properly, I would assume that the system was turned off because you should be able to hear that.

LT. COMMANDER SANTOMAURO: You're assuming that the radar wasn't --

LT. RONCSKA: Right. The radar was not on.

LT. COMMANDER SANTOMAURO: -- actually transmitting.

LT. RONCSKA: Right.

LT. COMMANDER SANTOMAURO: Okay. Thank you.

LT. JOHNSON: How are you doing. Lieutenant Charlie Johnson, U.S. Coast Guard. I don't have a lot to ask. Bill actually covered most of the things that I had over here.

Have you ever had a close aboard contact in the past where you'd be coming to periscope depth and had to order emergency deep?

LT. RONCSKA: There's times and places that I can't mention that we were close, but we never ordered emergency deep. We knew by looking out the scope that we had time to get deep, to answer your question.

LT. JOHNSON: And you mentioned earlier that you turn on your -- I didn't write it down what your acronym was for it. It's basically an underwater telephone. Did you say hydro phone receiver?

LT. RONCSKA: RACKS. It's called RACKS.

LT. JOHNSON: RACKS -- and listened for close aboard contacts. Have you ever heard contacts over the RACKS yourself?

LT. RONCSKA: Again, yes. You can hear contacts. And again, it depends. It depends on a lot of things. One is how noisy the contact is, like these dirty merchants that have screws there. You can tell they're following and probably dinged up. And you just hear underneath the underwater telephone this (making noise), even if it's close.

LT. JOHNSON: Do you know the range, the maximum range of being able to hear a contact on that RACKS system would be?

LT. RONCSKA: Like I said, it depends on his aspect, how noisy he is, how fast he's going. And probably a very, very -- a dirty merchant would probably be picked up between 2,000-3,000 yards.

LT. JOHNSON: Do you want to define for the Board -- I know what you're talking about, but for the Board, what you mean by a dirty merchant?

LT. RONCSKA: A dirty merchant is where he has severe hull growth and there's imperfections in his screw which causes excessive cavitation. And cavitation can be heard for long periods of time. That's what I mean by dirty merchant. (Off mike.)

LT. JOHNSON: Where is the hydro phone for the water telephone located?

LT. RONCSKA: There's a couple. One is on top of the sail; one is beneath the ship.

LT. JOHNSON: On top of the sail forward, aft?

LT. RONCSKA: It's just in the center of the sail.

LT. JOHNSON: In the center of the sail. And the other one? I'm sorry.

LT. RONCSKA: Beneath the ship. It's underneath.

LT. JOHNSON: So you have one topside -- basically, you only have two; one topside and one bottom.

We talked briefly about bearing rates earlier. I want to take you back to that. And you made the comment that a small bearing rate would be indicative of a contact with a very distance range.

Is there anything else that a small bearing rate might tell you other than a very distant range?

LT. RONCSKA: It depends. If I did a maneuver on the contact, significant maneuver, and he didn't change his bearing rate, it's indicative that the contact is distant, mostly, not close. If I didn't maneuver and he had a low bearing rate, that could mean anything. It could be very close, pointing at me.

LT. JOHNSON: On a closing course?

LT. RONCSKA: Right.

LT. JOHNSON: What would you consider an adequate leg to determine that? If you're steady on course, how many -- and let's just use minutes.

LT. RONCSKA: Once I'm steady, two to three minutes.

LT. JOHNSON: Two to three minutes on course. Is this determined through echo ranging, what we're discussing here? I think we've all been through this echo ranging a lot, so we're not going to go back into that.

So is there any other information you would use to determine an approximate range of a contact other than the bearing rate as an officer on the deck that you would draw on?

LT. RONCSKA: Like I said, if he came up in all DE's, I would assume that he's close. It means he's coming in a little different angle to the sphere. Like you said, the bearing rate. Very noisy contact. If I could hear him on RACKS. And if we did a ranging maneuver and his bearing rate changed significantly.

LT. JOHNSON: Does sonar ever report to you SNR levels as the officer on the deck?

LT. RONCSKA: Sometimes they will report that the SNR is increasing. If it does increase significantly, they will.

LT. JOHNSON: Are officers on the deck trained in what the different values that they may be given, what they actually mean? I know you're a sonar officer; correct?

LT. RONCSKA: No. I'm the operations officer.

LT. JOHNSON: Operations officer. You probably would have a better or less of an understanding than your average --

LT. RONCSKA: It goes with your experience level, the more experience you have. And you really can't pinpoint the contact with an SNR. It varies so different because a fishing boat that's 20,000 yards or 10,000 yards away could have the same SNR as a merchant 30,000 yards away, depending on how noisy it is. You just don't know. But you can -- you can look at the display of the SNR. If it's burning in, which is another term. It means his trace is so back --

LT. JOHNSON: If I told you I had a contact within minus 2 SNR, that would mean nothing to you?

LT. RONCSKA: It means it's not significant.

LT. JOHNSON: What about a plus 5?

LT. RONCSKA: Plus 10, plus 15, plus 20, you're talking it's probably something you need to watch. It's not the sole indicator of contacts but just something else that you put into the equation of your confidence level.

LT. JOHNSON: And this scale is like any common scale? A minus 9 is less of an SNR than a minus 2 and onward?

LT. RONCSKA: Right.

LT. JOHNSON: Talked a little bit about the FT

of the watch and your experiences with FTs in the watch and whatnot.

Do you see that -- and if I asked another qualified and distinguished, that would be the same question, so I'm just trying get a feel for it. Do you see that FT of the watch as a proactive watch or a reactive type watch?

LT. RONCSKA: It depends. Just like any, you get some all stars that will tell you, hey, you've got to watch out for this guy or you'll sit there and you'll ask the fire patrolman what's the CPNS and he'll tell you, well, it's 2,000 yards and you'll look at him and say why didn't you tell me that.

So it depends.

LT. JOHNSON: Sure. And recognizing that you're just one of many distinguished gentlemen that do this job, I'm understanding there's no hard and fast rules. But you have a good amount of sea time, time on the scope, so to speak, so I'm going to rely heavily on your opinion.

What do you expect as an OD out of your FTO watch?

LT. RONCSKA: I expect him to, like I said, as soon as the scope breaks the water, to help me get down the bearings of all sonar contacts, report any contact that is generating a system solution within 10,000 yards, especially if a CPA -- at the same time it generates a system solution as a CPA block, which is a close pointed approach, which will tell me how close he will be at a specific time and what the time is and bearing.

I expect him to let me know if I do an observation and I actually see a visual contact and the contact is in a situation where it might be a problem, initially I picked him up at 20,000 yards but in no time at all he can close within 10,000 yards, I expect him to tell me it's been -- with that thumb line discussed of range minus two is the time between operations. I expect him to keep me honest and help me out, back me up, and say, hey, you haven't done an observation on this guy. It's time for an observation. He needs to speak up and say request observation of Victor 12.

And the same thing with the CEP. Expect him to back me up, especially he backs me up if I tell him -- if I don't hold a contact out of bearing, I expect

him to back me up and say you requested to look down this bearing two minutes ago. It's been two minutes from the original contact.

LT. JOHNSON: In your experiences, is the FT of the watch also the same gentleman that manages the CEP plot?

LT. RONCSKA: No.

LT. JOHNSON: He's not.

LT. RONCSKA: It depends. It depends on the situation of where you're operating. If you're operating a high contact --

LT. JOHNSON: Off the coast of Hawaii, let's just say. Would you expect it to be manned by the same person or two different individuals?

LT. RONCSKA: We normally have two different individuals but on occasion if there's -- for some special circumstances you can have one person do both.

LT. JOHNSON: Are you aware of how the determinations are made on what personnel to leave in port during VIP cruises and what individuals are taken to sea? Is there any magic formula as to who we're going to take, who we're going to leave, and considerations for numbers or things?

LT. RONCSKA: No. What you do is the chief of the boat proposes a watch bill of all key players. And on our ship we have he submits it, the chief of the boat. And it's reviewed by me, by the combat systems officer, the EXO and the CO. So we have five different people looking at how the ship's watch bill is going to change and how that is going to affect the safety of the ship. That's why we do that.

LT. JOHNSON: Is the CEP plot considered a key player?

LT. RONCSKA: It is a piece of the puzzle but I would not say that it's the -- we have managed with a fire control, so it's a judgment call.

LT. JOHNSON: If you had a FT that was running his electronic plots and whatnot, stacking bearing and his solutions came up to say that, hey, I think this guy is getting really close, sir, 2500 yards. I'm just pulling numbers out of the air here. Is he required or would you require him to notify you prior to changing any solution on a contact that he had previously that was striking in that close to you?

LT. RONCSKA: As far as -- your question is if you wanted to change a system solution, would he notify

you?
LT. JOHNSON: Yes. He tells you he's got a contact he believes is 3,000 yards. And you go up, you raise the scope, swing around, and say, no, I don't have anybody. I don't see anybody. Would he then just go back in and reset his stuff to say, well, evidently the OD doesn't see him so he's not there, so now I'm going to throw him way out of the picture here or would you expect him to continue to track and provide you information that put him at that mark.
I realize this is all subjective, what you would do if. But again, please understand.
LT. RONCSKA: The fire control on our boat -- that's a tough call. Looking down the bearing should be truth. And if you tell the guy that you don't have any contact there, you know, and he probably has on the green field of the display where he can see what the op spec is looking at as long as he looks down the bearing.
And it depends on how many legs there were and how confident he was in the solution. There are so many variables that that's a really tough question.
LT. JOHNSON: Does he have the -- I guess the authority or the freedom to just plug in numbers and change -- without your knowledge or permission?
LT. RONCSKA: Yes, if he believes it's in the distance, because you're preoccupied on the scope and he's not going to interrupt you to take your -- you know, question the system solution or go over and look at it, especially if you're the only officer of the deck up there.
So in that situation, he has the authority.
LT. JOHNSON: In your experience, and I know you've done a lot of these VIP cruises, how many guests have you ever seen crammed into a control room at one time approximately. And I understand --
LT. RONCSKA: Probably 15 guests.
LT. JOHNSON: Is it confusing when this happens?
LT. RONCSKA: I'm sure it could be if you don't control it. There's times when we were anchoring on the -- that we had to tell the guests to leave.
LT. JOHNSON: Is there a difference in having -- and I have been in a control room before. It's been manned by just sailors. Is there a difference in the congestion level and the noise level when you're --

let's just say manned battle stations. Do you consider manned battle stations to be when you have the most people in the control?

LT. RONCSKA: Yes. It's very comparable.

LT. JOHNSON: What's the noise level, the congestion level like with visitors, 16 visitors in a control room vice 16 sailors manning consoles and doing your general quarters type work.

LT. RONCSKA: And again, it depends on how well you brief the visitors during special observations before you actually conduct them. You make sure that they keep their conversations to nothing. And it depends. It depends on how well you tell the people, hey, we're conducting special operations. We need you to be quiet. And if you don't say that --

LT. JOHNSON: Are most of your people at battle stations seated behind consoles and pretty much tucked out of the way or are they standing around?

LT. RONCSKA: No. They're standing around.

LT. JOHNSON: Standing around.

LT. RONCSKA: For example, there's periscope assistance. There's the video camera operator. He's right there in the control room. You've got the officer on deck looking at the screen. You've got the captain. You have all the plot guys standing around and the quartermasters and navigation supervisors. It's very congested.

LT. JOHNSON: One last question I have here. And I know that -- I've read numerous Navy, Coast Guard tech manuals and instructions and things. We see in the military quite often the terms should, shall, will and it is recommended. Can you just very briefly touch on when you as an officer see should -- you should do this, what that means to you vice you shall do this or what is recommended that this happen as to this will happen. For the Board, could you just briefly touch on the differences?

LT. RONCSKA: In my opinion, shall means you'll do it and should means highly recommended that you do it. That's basically -- shall means follow the book and do what it says.

LT. JOHNSON: What does will mean?

LT. RONCSKA: I'd just put that in the same as shall.

LT. JOHNSON: Hard, fast, in concrete this will happen? End, over and out?

LT. RONCSKA: Right.
LT. JOHNSON: Okay. And it is recommended that. Where does that fall in all of this?
LT. RONCSKA: Recommended?
LT. JOHNSON: Yes.
LT. RONCSKA: Recommended is basically how I take that is in previous studies it's recommended you do it this way but you don't have to, but it's the preferred way to do it.
LT. JOHNSON: Discretionary? Like the officer on deck and the captain's discretion as to whether or not?
LT. RONCSKA: Right. Probably the officer on deck would choose to not go with a recommended --
LT. JOHNSON: Would you consider should -- when you see should in an op order or an op manual, should to be a discretionary thing but a little stronger perhaps?
LT. RONCSKA: Yes.
LT. JOHNSON: Shall and will, there is no discretion allowed with those in your understanding? I just say that to clarify because that's my understanding.
I don't have any other questions, gentlemen.
VOICE: Just really quick on the tech side, the formula for calculating the height of eye. You said the --
LT. RONCSKA: Height of eye equals --
LT. COMMANDER SANTOMAURO: I've got that.
VOICE: Oh, you have?
LT. COMMANDER SANTOMAURO: I've already got that. Not to shut you down, but I was going to say it's been covered.
MR. ROTH-ROFFY: Okay. We'll probably have to come back to Lieutenant Hedrick, but I do have a couple of questions. This is tom Roth-Roffy.
Could you talk to us a little bit about arrival times, papa hotel times, and what sort of pressures the ship might feel to make their schedule papa hotel.
LT. RONCSKA: -- the op schedule specifically says your papa hotel time, when you should address papa hotel. And then it's based on all the other traffic in the harbor and how the tugs can assist you to make sure that they're not -- make sure you get in.
If you need to get to papa hotel at a

specific time, you should try to get there because the worse case that's going to happen if you're late to papa hotel, you call port ops at Channel 69 and say my papa hotel time is whatever it is and they'll know if it's late or how late you are. And then you'd come back and say request permission. If they still can accommodate you by entering the port at that later time, they will.

So, the hazard is you just tell them that you're there. If they can support you, they'll tell you to wait out and stand fast until they can support you. So there's pressure and it is professional to get there when you're supposed to and on time, to say that you're going to be at a specific place at a certain place and time. But if for some reason you can't, you just wait until the next opportunity.

MR. ROTH-ROFFY: So it's not as if you have only one time and if you don't make that time you can't come in at all for the day or whatever?

LT. RONCSKA: I'm sure, depending on the schedule of what they have. But I'm sure they can accommodate you somewhat. It might not be in the next hour. It might not be in the next two hours. It could be up to three hours that you'd have to wait.

MR. ROTH-ROFFY: So probably there is a significant amount of pressure felt on the crew. Now who would feel that pressure? Would it be the captain, the navigator, officer on deck, to make certain papa hotel arrival time?

LT. RONCSKA: I'm sure it would be pressure around all the people involved as far as the officer on deck. It's his basic concern to get there on time when he's supposed to get the guests off and show that you're professional.

MR. ROTH-ROFFY: So it is a significant pressure. I mean, it's not as if it's a do or die but it's, as you say, professional pride.

LT. RONCSKA: And again, it depends. It depends why are you late. Is it because of weather or -- I would suck it up and say I couldn't make it because visibility was terrible or something went wrong, something mechanically went wrong or something that we just didn't plan right and couldn't make it. So if there's a good reason for it, yes.

MR. ROTH-ROFFY: And who would adjust the ship's core speed, et cetera, to make a certain papa

hotel. Would that be the officer on deck, the navigator?

LT. RONCSKA: Normally what happens is that whenever we surface or in an evolution that you need to get to a certain place at a certain time, I will be on my ship right next to the plot so you know exactly where you need to surface, what is your required time to get to the next point. And I am there talking to the officer on deck. Hey, you need to come here; you can get over here; you need to do this now; this is how much time you have; this is your speed required once you surface to get to papa -- on time.

So pre-planning is the key to get there. So to answer your question, the navigator -- making sure where you are and the specific time, being backed up by the officer on deck and the captain and the EXO.

LT. JOHNSON: This is Lieutenant Johnson.

Tom, can I ask you something real quick? And this is maybe for him, too.

My understanding is papa hotel time is set by the harbor master in Honolulu, is that correct, and not the Navy? I may not be correct on that. That's why I wanted to ask.

LT. RONCSKA: Right. What happens is the SUBPAC puts out the papa hotel time. It's coordinated with NSSC and the harbor master.

LT. JOHNSON: Do they get that from the guy downtown in Aloha Tower that works for the state, the harbor master?

LT. RONCSKA: Oh, no. It's right here.

LT. JOHNSON: Okay. So it's a Naval?

LT. RONCSKA: Right. Has nothing to do with Aloha Tower.

LT. JOHNSON: So the harbor master is not involved. The civilian harbor master here is not involved with it.

LT. RONCSKA: No. It's Pearl Harbor control.

LT. JOHNSON: Thank you. I wasn't sure.

MR. ROTH-ROFFY: And could you describe what happens when you reach papa hotel and what the significance of that is? You know, relation of tugs, pilots, other things that may happen?

LT. RONCSKA: Sure. What you do, what we do, op order 205 specifically says you don't need permission to get underway as long as you get underway

at plus or minus a specific time by about 15 minutes. You do need permission to enter a port if things change frequently. A half hour prior to or 45 minutes prior to papa hotel, you would call up Pearl Harbor control and this is how the conversation would go.

We would say Pearl Harbor control, this is USS ASHEVILLE, Channel 69. They'll come back and say Pearl Harbor control. ASHEVILLE, this is Pearl Harbor control. Roger. Over. And you'll says pearl Harbor control, this is ASHEVILLE. Request to enter port on time; request interfering traffic; request tug assignment; pilot and berth assignment. Over.

And he'll come back and he'll say, Roger. You have permission to enter port, papa hotel time 1600. Your pilot will be Peter 3, tug assignment Z 3, working channel will be channel 14. Pier assignment is zero 21 alpha -- And no interfering traffic. (Off mike.)

And we'd say this is ASHEVILLE. Roger. Out. And that's -- as long as you're near papa hotel at the time. Doesn't have to be exactly at 1600 where you have to pass through. There isn't somebody monitoring you to say oh, you're two seconds late or five minutes late. But you can adjust your speed after you pass papa hotel to coordinate the tug assignment.

And once you pass papa hotel plus or minute five minutes, you go into the harbor and the tug usually waits for you around hospital point. In the middle of the harbor there's a hospital point which is near the -- the southern tip of port island. The Z tug usually is stationed right there to clear the channel for you.

Then after you make your leg into the 123 leg into the harbor, he'll come alongside you then. And he'd be waiting for you there south of port island.

MR. ROTH-ROFFY: What buoy number is that approximately?

LT. RONCSKA: You're past the buoys. You're already in the harbor. There's no tug that meets you outside the buoys. In my experience, you always are well within the harbor past the buoys.

MR. ROTH-ROFFY: And then the tug will come alongside, tie up to you?

LT. RONCSKA: The tug will come alongside and verify -- (off mike).

MR. ROTH-ROFFY: And do submarines, when they

leave and return to harbor, take pilots on board?

LT. RONCSKA: It's up to the CO's discretion. He can determine to have the pilot come on board, which is better, because he can talk to the captain and the officer of the deck right there personally. But in a harbor where you know a certain -- he normally stays on the tugboat and coordinates the landing from the tug.

MR. ROTH-ROFFY: So it's not typical to take a pilot for a submarine in Pearl Harbor that has the home port here?

LT. RONCSKA: Right.

MR. ROTH-ROFFY: I'd like to ask you again a little bit more of the details of raising the radar mast. And I believe you said it takes about 20 minutes. You have to open up the hatch. Could you just go through that in a little more detail?

LT. RONCSKA: Sure. You have to -- once you get at a specified depth and specified speed, as soon as you get to periscope depth the scope breaks the water. Nobody talks until you do your searches, verify there's no close contacts. There's all these reports coming in saying ESM contacts and sonar contacts.

Then if you're doing a broadcast or doing whatever, there's people talking to you once you gave them free rein once you say no close contacts and you'll say carry on your business.

Then if I were to say achieve the watch or dive, break rig for dive -- which is required to get to the radar mast. And you'll say break rig for dive,open lower bridge access hatch. So you need to get someone standing by to get that. He climbs up the ladder, opens the bridge access hatch and he opens the hatch. You're probably talking -- after initial break the water, you're talking another three or four minutes to get someone in the trunk, and to open the hatch, probably another two, three minutes. You're talking five minutes now to actually get access to the radar.

Once you have access to the radar, he needs to unlock the radar mast and there's also an auto-locking device. There's two different locks that we have on our ship to ensure the mast doesn't come up when we're submerged.

Once that's accomplished, that takes about a minute. Once that's done, you get to man the radar and then he'll come down and report to the chief of watch

that the radar mast is unlocked. And the chief of the watch will then get permission to raise the radar mast.

Once you raise the radar mast, it takes a switch, so you're talking maybe another couple of minutes. So by the time the whole thing, if everything went smoothly and your emphasis was on raising the radar mast, you're talking 10-12 minutes, 10 minutes to get it raised.

And then you have to get the radar operator to start rotating and radiating with their reports. So if you really wanted to, you probably can get the radar mast up in 10-15 minutes, after all the initial reports and all the other coordination involved.

And once you have it up, then you're limited in the ship's speed. And in the event you have to call emergency deep, then your integrity of your ship is lessened because you have the lower bridge access hatch open, which you could potentially shut it but you don't want to in the event you need to lock and go deep, which you could. You'd have to train the radar for lowering, which the radar operator has to secure.

So he has to train it. It automatically trains. And then he has to lower it. Where in that emergency deep procedure or in the event he didn't see a contact and he calls emergency deep, which he can after initial thing because the contact will pop up, you just bent the radar mast because the radar operator is still rotating and radiating. The chief of watch's immediate action is to lower all masts. So he's trying to lower this radar mast and it's still spinning around.

The helm automatically rings up ahead full and the dive automatically starts, causing the ship to descend. And you just damaged the radar mast.

And again, that goes back to the pros and cons of having the radar mast up, potentially damaging it. For example, you need to increase speed and you forget that the speed limit is there -- the integrity of the ship where your main censors, your visuals, you have sonar.

And so like I said, the pros versus cons of having the radar mast up compared to potentially damaging it and the integrity of the ship is outweighed.

MR. ROTH-ROFFY: Now this procedure that you need to do to raise it involves pulling a pin. Has it

always been that way that you had to open up that hatch and pull those pins since the vessel was designed?

LT. RONCSKA: Yes.

MR. ROTH-ROFFY: I think we heard something --

LT. RONCSKA: There's an auto-locking thing. I don't know if you're getting at -- there used to be this auto-locking mechanism that some of the officers of the deck were not familiar. It was easily confused to see if it was locked or not. And the officer on deck would look at the auto-locking device. And if it wasn't locked specifically or how it was designed, which can be deceiving at times because they made this mistake before. If it's not locked and you proceed deep and you go at higher speeds, the suction forces of the ocean can cause the radar mast to come up.

If it comes up, -- so they came up with this other plan of a pin where it's obvious if it's locked or not with this pin. So we have two of them now. But that pin causes another 20 minutes.

MR. ROTH-ROFFY: So you would still have to go up into the mast to disengage the auto-locking. The fact that you have to put the pin in doesn't add anything to the procedure.

LT. RONCSKA: Right. The pin is very close to where the auto-locking device was -- still is.

MR. ROTH-ROFFY: Okay. I'd like to ask -- any other questions?

Okay. Bill Woody.

MR. WOODY: Bill Woody. Were you operating any time the week prior to the accident that befell the GREENEVILLE?

LT. RONCSKA: Actually, we surfaced approximately 4:00 that morning off the cost of Kuwaii, a small boat transfer off Kuwaii. We surfaced, then we submerged off Kuwaii and then we conducted a submerged transit off the coast of Oahu.

We were surfacing at approximately the same time that the accident occurred, 30 miles west. And approximately -- I believe it was Mike 12 or Limit 12. Limit 12, Mike 12.

MR. WOODY: Would you characterize the sea state and the visibility at that time?

LT. RONCSKA: The visibility that morning off Kuwaii was terrible. There were certain spots where you couldn't see 500 yards in front of you. And -- which contributed to the port smith, who was also with

us, for entering the port late because of the visibility. We couldn't transit fast enough on the surface to get to their submerged point to make it to the papa hotel in time. So in this case, they had to come in late.

When we did surface that day, the visibility was still -- it was overcast to my knowledge. It was definitely overcast. And there may have been some areas where there was visibility that was -- there may have been sectors where the visibility could have been obscured.

MR. WOODY: Would you have any difficulty say seeing a white hulled ship because of the visibility?

LT. RONCSKA: I could definitely see that because of the overcast. It was not a blue sky with the sun shining. Like I said, the overcast was this grayish white. The officer on deck was maybe looking at the sky initially. His eyes were trained to see this white grayish. And then all of a sudden he looked at a white hull of the ship. I'm sure it potentially could have caused a --

MR. WOODY: Difficulty in seeing, recognizing or detecting it?

LT. RONCSKA: I'm sure. Because I remember the sky was definitely -- it wasn't a typical Hawaiian day where you see blue skies and the sun. It was definitely completely overcast and it was a miserable day out.

MR. WOODY: How was the sea state and wind direction, if you can recall?

LT. RONCSKA: I don't remember the sea state being too bad. It wasn't calm but it wasn't in excess of three sea state, which you're rocking and rolling. It wasn't bad.

MR. WOODY: It was three or less or was it less than three?

LT. RONCSKA: I'd say it was less than two.

MR. WOODY: Less than two. Would it make a difference three miles to the east because of depth gauge or anything like that?

LT. RONCSKA: I doubt it.

MR. WOODY: Doubt it. Okay. Were you getting any wave slap on your periscope when you came up at periscope depth?

LT. RONCSKA: I don't remember.

MR. WOODY: Thank you very much.

MR. ROTH-ROFFY: Could we just get your contact information, please, for the record? Name and your permanent address?

LT. RONCSKA: Sure. You want my home address? It's Lieutenant Robert Anthony Roncska. Last name is spelled R-O-N-C-S-K-A, aboard the USS ASHEVILLE as Navigator/Operations Officer. -- telephone number is 471-5638. My home address is ... Honolulu, Hawaii 96818.

MR. ROTH-ROFFY: Okay. Would you be able to talk to the Safety Board at a future date concerning any other questions that we may come up with?

LT. RONCSKA: Sure.

MR. ROTH-ROFFY: Okay. Just let me finish my sentence and then we'll ask Lieutenant Kusano if he has anything further.

We appreciate very much your coming down and spending this time with us. Your responses were very, very enlightening and very helpful to us and we thank you very much.

LT. KUSANO: This is Lieutenant Kusano. Just really quick on the papa hotel.

Is Friday considered a pretty busy day with all the surface ships and subs are coming in after a week's training?

LT. RONCSKA: Quite actually, I never correlated. I know that Sundays are a very quiet day and Saturdays. I would say that probably it is. I never ever correlated Friday to be busy, but now that you look back and thinking of Fridays coming in it's going to be busy. It depends. But I would expect Friday to be more congested than other days because of the ships like to stay out for the week and come back in.

LT. KUSANO: So more ships underway Monday for training and come back on Friday?

LT. RONCSKA: More ships underway Tuesday, come back Friday.

LT. KUSANO: Do they ever prioritize who comes in by lineal number of just by whoever --

LT. RONCSKA: Quite actually, I don't how they do it. I know the priority is if you are scheduled first to come in at a specific time, you have priority over someone that is late and come in at a subsequent time. They won't push anybody back unless there's a very good reason why, you have emergency repairs or

something like that that you have to come in right away, or a VIP tour --

LT. KUSANO: Certain types of ships, like carriers, do they get priority over subs to surface?

LT. RONCSKA: I've never seen that. I don't know what they would do in that circumstance.

LT. KUSANO: That's all I have.

MR. ROTH-ROFFY: Okay. There being no further questions, that ends our interview with Lieutenant Roncska. And the time is 10:59.

(Whereupon, the proceedings were concluded.)