UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

Investigation of:	
ROGER BLOUGH CASUALTY	
IN STURGEON BAY, WISCONSIN	Accident No.: DCA21FM015
ON FEBRUARY 1, 2021	

Interview of: JONATHAN J. FRANK, Service Technician
Tweet/Garot

Bay Shipbuilding Conference Room
Sturgeon Bay, Wisconsin

APPEARANCES:

CWO [redacted], Investigator
United States Coast Guard

DAVID FLAHERTY, Investigator
National Transportation Safety Board

I N D E X

I N T E R V I E W

CWO [redacted]: This is Chief Warrant Officer [redacted], the assigned investigator for the *Roger Blough* fire that occurred on 1 February, conducting an interview with Mr. Jon Frank with Tweet/Garot and I also have on the phone David Flaherty with the NTSB. I'd like to record this interview, if I have everyone's permission.

Jon, do I have your permission?

MR. FRANK: Yes, go ahead.

CWO [redacted]: David, is that okay with you, sir?

MR. FLAHERTY: That works.

CWO [redacted]: Okay, thank you.

INTERVIEW OF JON FRANK

BY MR. [redacted]:

Q. All right, so to get started, Jon, could you please introduce yourself, spell your first and last name for me, tell us who you work with?

A. Jon Frank, J-o-n F-r-a-n-k. Work for Tweet/Garot as a service technician.

Q. And how long have you worked with Tweet/Garot?

A. Just around 10 years.

Q. Okay. Do you have any identification with you?

A. I do, in the van.

Q. You do, in the van, okay.

A. Yes.

Q. When we conclude here, because we --
A. I forgot, yes, I was supposed to bring my Tweet card in.
Q. Okay, no worries. What's your date of birth?
A. Eleven fourteen seventy-nine.
Q. Okay. You live in Wisconsin?
A. Yes.
Q. And where do you work out of primarily, Green Bay or --
A. Well, we're based out of Green Bay, but being service, we just take the vans home and you get dispatched wherever.
Q. Well, that's handy.
A. Yeah.
Q. That's really nice. Where's your favorite place to come do work?
A. Typically, Door County.
Q. Really?
A. Because you're away and they don't bother you.
Q. That's good. Do you get any fishing in when you come up here at all?
A. No.
Q. No? You're missing out.
A. Yeah. I'm only -- I only live in Luxemburg, so that's 30 minutes, 40 minutes away.
Q. Oh, yeah, so you're pretty close.
A. Yeah.
Q. You know the way of life okay.

A. Oh, yeah. Yeah.
Q. Good deal. So I'd like to discuss some things on the *Blough*. There was a fire on board that caused pretty substantial damages and we've been looking around the vessel and one of the areas of interest is a layup furnace.
A. Um-hum.
Q. And it's my understanding that you have worked on that furnace at some point or have some awareness of it. I'm just trying to understand when you were last on board, what you looked at or if you did any service. Could you kind of walk me through, tell me a story of your involvement with --
A. Yeah.
Q. -- this particular furnace?
A. I believe the last time we were on board, because we installed it last year, in -- probably around the March time period.
Q. Okay.
A. And they called, I believe it was around the 29th of December, that they could not get it going, but they were -- Christian left for -- he was gone for, I believe, just the holidays --
Q. Okay.
A. -- because we're between Christmas and New Year's here. And the two guys from the ship keepers, two ship keepers were on board --

Q. Okay.
A. -- and they couldn't get it going or something. They adjusted something which I don't think should've been adjusted because they said it had a little puff of smoke or whatever, but that was typical when it first starts up because the stack is cold, it needs to come up to temperature for proper draft. So when I went there, wouldn't light right away, they couldn't get it reset, I reset it.

Didn't light, so I took it all apart, put the electrodes, adjusted everything to the manufacturer's specs, because they had -- when they took it apart, if your electrodes aren't lined up just right, there's three different measurements you got to meet within a sixteenth of an inch, it won't light.

Q. Okay.
A. So, put it all together, fired right up, did a combustion test, matched it with what we did last March and it ran good, only thing I suggested is during layup here that we do a thorough cleaning and inspection of it, because we don't know what they may have touched without us digging into it.

Q. Okay.
A. But everything was running good when we left.
Q. Outstanding. When you say we left, do you mean you as an organization? Was there anybody with you?
A. Me, yes. When Tweet/Garot left.
Q. Okay, when Tweet/Garot left. You said the ship keepers on

board, who do you recall was on board when you were there doing a service?

A. The names I do not know.

Q. If you heard a name, would you recognize it?

A. Possibly.

Q. Do you know if one of the individuals was -- was older, like older than you and I?

A. They were both older.

Q. Okay.

A. I would say retirement age.

Q. Okay. So it wasn't Christian on board?

A. No, he was gone.

Q. Okay.

A. Christian, I know.

Q. How do you know -- how do you know him?

A. From the install last year and the maintenance we do. Because we do all the maintenance in the galley, anything with refrigeration.

Q. Okay. You said that the ship keepers on board adjusted something, you're not sure who adjusted?

A. I don't know who, but there was like, they said the -- there's a damper going up to the stack that they said they moved like a week earlier because it had that little puff of smoke, which was, like I said, normal on startup because of the cold stack.

Q. Okay.
A. Because these things -- that stack is almost a hundred foot run.
Q. Yeah.
A. It goes up high. So you got to get that thing hot, run it for a good 15, 20 minutes before you fine tune your adjustments.
Q. Okay.
A. And that's all per the manufacturer.
Q. Okay, so the ship keepers on board adjusted something they shouldn't have and that something was they moved the damper?
A. I believe they said they adjusted that damper.
Q. Okay. Damper being for airflow in?
A. The airflow out.
Q. Okay. If I showed you pictures of the furnace, could you point me to the --
A. Oh, yeah.
Q. Now, is that exhaust air out or is that --
A. Yes, that's the air exhaust there, because there's a fan motor in front of that.
Q. Okay. On the portside of the furnace?
A. Oh boy, now you're going to port. Boy, without knowing which way that thing is facing and being in it, I couldn't tell you which is port and which is out or --
Q. That's fine.
A. -- starboard side.

Q. Okay. So they adjusted a damper for the exhaust airflow out?
A. Um-hum.
Q. Because there was a little puff of black smoke, but you're saying that puff of black smoke, that's normal on initial --
A. Yeah. And not like -- you just -- I mean, just when it lights off, you just get a little haze, not a --
Q. Okay.
A. -- you know, black cloud of smoke that like, oh my gosh.
Q. Okay. Did they mention adjusting anything else?
A. No, all's I know is they took the burner assembly apart. Because the electrodes weren't quite set the way they're supposed to be. They're cleaning it up. So I don't know if -- the way I understood it, they adjusted the damper a week prior to it failing, so I don't know if them adjusting may have thrown something off and sooted the burner up slightly and that stopped it from running.
Q. Okay.
A. And then you only got three tries and it locks itself out.
Q. Right.
A. And they didn't know how to reset the controller to retry again.
Q. Okay.
A. Well, it was in the book, in the -- that we found in the manual that we left behind from startup.
Q. Did they -- did anyone relate to you when they -- if the

furnace was running before you came out or was this their first try to start it up for the season?
A. No, it was running prior to.
Q. It was running prior to.
A. Yes.
Q. So the furnace was running prior to the 29th of December and --
A. That's when it locked itself out. It tries three times and then it's done. That's it's safety feature. If it doesn't see flame within three seconds, it'll lock out. But then you have to manually reset the controller on the burner for it to try a second time and then you can try a third time, but after that it'll lock itself out hard. Then you can push it as many times as you want, unless you know how to do it, it won't reset.
Q. Okay. So the furnace has a safety lockout after three ignition attempts. Crew didn't know how to reset that and that's something you showed them --
A. Um-hum.
Q. -- once you were there? That reset, is that something that can be held open or manipulated so you can continue to just keep trying?
A. No. Not that -- no, you would have to be an engineer of some sort to figure it out, no.
Q. Okay.
A. That's a little computer box.

Q. Okay. And when you say engineer, the ship's engineer would have that ability?
A. No, no. I mean, like electrical engineer as far as --
Q. Computer stuff.
A. Yeah. Yes, you would have to know -- you'd have to refigure the controller.
Q. Okay.
A. There's no way that you can just throw a set of jumper wires on.
Q. Okay. So not an easy thing to do.
A. No.
Q. Not common knowledge. You said they took the burner assembly out, that's something that I was made aware of, as well. Do you know what they did with this burner assembly when it came out?
A. I thought they just cleaned it, as far as I know. When I took it apart, it was pretty clean. I just adjusted all the electrodes to the proper settings.
Q. Can you talk to me about these electrodes?
A. So you got your oil nozzle, that's going to throw a cone of your fuel oil into the air with a fan behind it and it's going to make a cone and these electrodes have to be set so high off the center and so far apart and so far away from the nozzle, so it hits the spark, hits the edge of that cone, to ignite it. And that's the way most oil burners work.
Q. Okay, so the oil will cause that -- the oil nozzle makes a

cone and that's that flame cone, right?
A. Yeah.
Q. And then you have electrical contacts, what's the term that you used again?
A. The electrodes, yes.
Q. Okay.
A. Because you have like a -- roughly, a 10,000 volt transformer that touches these electrodes and keeps a constant spark across there to keep that lit.
Q. So these are just for ignition?
A. Yes, they're for ignition and then there is a photo eye that if it sees flame, it will stay lit, stay running. If it does not see flame, within three seconds it'll shut down.
Q. Okay. So for safety features on this furnace, you mentioned the photo eye, some call it the flame eye, is that the --
A. Yeah --
Q. -- same thing?
A. -- photo eye, flame eye. Some might call it a scanner.
Q. Okay. What safety interlocks are on this furnace to protect itself from that firing cycle, is there anything like that? So what sensors are installed on this piece of equipment that will shut it down if it sees a problem or has an issue? I know we have the flame eye.
A. The flame eye is the biggest one because if it doesn't see flame, "I'm just not going to run, I'm not going to keep pumping

fuel, I'm just" -- it shuts down completely.
Q. Okay. So we have a flame eye for a safety device.
A. Um-hum. It will be a high temperature limit.
Q. Where is that high temperature limit?
A. That, I would have to look in the manual.
Q. Okay. Would that be in the stack?
A. No, no. That would be in the unit itself.
Q. Okay. And this is some type of thermal cutout device where if we have too much heat rising in the box, she shuts down?
A. Yeah.
Q. We have flame eye, high-temp limit, and what else do we have?
A. Off the top of my head, that is all I know.
Q. Okay. So for sure, we have those two and if we get a chance to look at the manual --
A. Yeah.
Q. Okay.
A. Because this ain't a common piece of equipment that we typically would work on daily.
Q. Okay, so these oil-fired furnaces aren't an everyday thing for you folks?
A. No, because everything for us is typically on land and it's natural gas or propane.
Q. Okay. I'm just taking a few notes in addition to the recording. Is it possible that this has combustion air as far as, you know, air inlet for box pressure to make sure it's getting

good combustion air?
A. It does have its own air intake and that comes, I believe, from outside somewhere. It's a duct.
Q. Okay.
A. It goes right to the combustion box --
Q. Um-hum.
A. -- where the burner sits in.
Q. Okay. They talked about igniters and gapping.
A. Um-hum.
Q. The crew had mentioned something to that effect. I'm trying to understand because the terminology is always a little different. There's you, being, you know, a technical expert in a lot of these things.
A. Igniters, electrodes, pretty much the same thing we're talking about, and the gap. If you don't have the gap right, it won't light.
Q. Okay. You had to re-gap these --
A. Yeah.
Q. -- under the cone, correct?
A. Yeah.
Q. Okay. What's the tolerance for that? Does --
A. Usually plus or minus a sixteenth.
Q. Plus or minus a sixteenth of -- within the edge of the cone?
A. Well, no, plus or minus a sixteenth with the measurements that they give you.

Q. Okay.
A. Because let's say it's -- I want to say it's like a five-sixteenth gap with seven-eighths away from the cone or I -- I don't remember the measurements off the top of my head, but it's in the manual --
Q. Okay.
A. -- and what I use is either drill bits to that size to get the gaps right or an Allen wrench. You just don't wing it with a tape measure.
Q. Okay. So you use an Allen wrench or drill bits to gap these igniters. Did you notice how far off these were?
A. Probably by a little more than an eighth.
Q. Okay.
A. And then there's two of them, so one was ahead of the other but, you know, they got to be set just right.
Q. Okay. And how many of these igniters or electrodes are there?
A. There's two of them, just the pair.
Q. And the arc just jumps between them to keep that --
A. Yeah.
Q. -- cone ignited? Okay. When they say burner tips, what do they mean exactly by burner tips?
A. Burner tips, I'm thinking they would've referred to as the nozzle.
Q. The nozzle.

A. Which is your -- how many gallons per hour your cone, whether it's a solid cone or a hollow cone or whatever --
Q. Um-hum.
A. -- the manufacturer specs.
Q. Do you know what kind of cone this thing throws out, this furnace in particular on the *Blough*?
A. We have them ordered through Sid Harvey and we can't get them until March, they're like backordered forever.
Q. What you're looking at on your phone there, is that the service report --
A. Yeah, it's my --
Q. -- for your day out there?
A. Yeah, that's my write-up. I do not have it in my write-up.
Q. Okay.
A. I could find out if you really need to, as far as I can see what's ordered.
Q. I'd like to understand the situation to the greatest extent possible, to --
A. Um-hum.
Q. -- narrow in or rule out any causative factors, so --
A. Yeah.
Q. -- that would be very beneficial. Possibly leaving here, what I'll likely do is put together a list of additional questions based on what I'm seeing, hearing, smelling on board --
A. Um-hum.

Q. -- and then to get those out to you or your team to have a little bit of truth-checking take place so we can --
A. Yeah.
Q. -- understand it. I want to make sure I'm using the right terminology and that I'm fully understanding the piece of equipment. So the electrodes were -- the gap was a little bit off. I'm under the impression that there might've -- the crew may have tried to change the gaps on those to get it lit, does that sound --
A. I don't think they intentionally changed the gaps, but they cleaned it and when you clean it, you take it apart and if something moves a little bit --
Q. Okay. Could've bumped?
A. Yeah.
Q. Because it's a small tolerance.
A. It is.
Q. Okay.
A. It's --
Q. Oh, go ahead.
A. It's got to be a tight tolerance for it to hit the right spot on that cone as it throws it out.
Q. Okay. Burner tips, are those consumable -- considered a consumable part?
A. Yeah.
Q. Okay.

A. Because there's a filter behind them, just got to make sure they're clean.
Q. And how often would a burner tip be cleaned?
A. Typically, you do it yearly. You know, these ships only use it during probably three months at the most, a layup.
Q. Okay.
A. But yet they sit the rest of the year with old oil and stuff and that's -- the oil can get kind of like gummy. But then there's people out there that don't maintain anything and they run for years without any issues. You know, it's just --
Q. The way it is?
A. -- one of those things.
Q. We'll come back to safety. I'll put a list together and see if you all can look through the manuals and moving forward, I'll get a copy of your service report. Before you leave today, I'll --
A. Um-hum.
Q. -- have you e-mail that to me right here so I have something to work with on that side of things, just to make sure that that report jibes with the other documentation that I have.
A. Yeah. And we have startup reports that we should give you as far back as in February or March, whatever, when we --
Q. Yeah.
A. -- originally started it.
Q. Yeah. And I spoke to Greg, I believe?

A. Yeah.
Q. Greg, what's his position?
A. He is the project manager.
Q. Okay.
A. Our accounts manager --
Q. Okay.
A. -- for the projects on the ships.
Q. I will get with him as far as other documentation, I can ask, since you have that service report from the 29th of December, if you could e-mail that to me before you leave here, that would be -- that would be good.
A. Yeah.
Q. So burner tips are considered a consumable product, they're typically cleaned yearly. I'm just going to recount some of the things that we've gone over --
A. Yeah.
Q. -- to make sure I have these facts correct. You got called out on or about the 29th of December, the ship's crew or somebody with Key Lakes called and said that the unit wouldn't run. You got there and it was your understanding or assumption, based on what you saw and heard, that the ship keepers adjusted something they shouldn't have, it sounds, and it was your belief that they may have moved the damper for the exhaust airflow --
A. Um-hum.
Q. -- out. And you also mentioned that they may have adjusted

that a week earlier, as well?
A. Yes.
Q. Okay.
A. Because what that exhaust damper will do is say you got a fan that's running at a constant speed and how much you open and close it is how much draft you're going to have, so if they adjusted it just a little bit further of what our tolerance was last year when we started it up, I don't know if that would've caused something to soot-up like the photo eye, and then it wouldn't start for them so then they went to try to clean it.
Q. Okay. It sounds like they took the burner assembly out and they cleaned it, you're not sure if they intentionally gapped it or may have accidently got things out of tolerance with the igniters --
A. Yeah.
Q. -- with the electrodes in that cone.
A. Because when I arrived, it was all together and they just couldn't get it reset.
Q. Okay. The furnace has a safety lockout device, after three times of attempted combustion cycle, if there's an issue and it can't sustain a fire then it locks out --
A. Yeah.
Q. -- hard and there is a specific way to reset that?
A. Um-hum.
Q. The crew was not aware of, to your knowledge --

A. No.
Q. -- how to reset that?
A. Because it's in the manual, we had to look it up.
Q. Okay, so you all looked it up together and then you got that reset. And you'd mentioned there's no way to really jump that thing --
A. No.
Q. -- to make sure that it --
A. Not to my knowledge, I don't think there's any way you can jump that.
Q. Okay. I'm looking through some of the other stuff. As far as safeties are concerned, nothing off the top of your head. And I appreciate your cooperation, it's hard to keep all the details straight --
A. Um-hum.
Q. -- I understand that. You've got flame eye and then a high-temp limit and maybe we'll revisit that, I'll call you or something.
A. Yeah.
Q. Once you've had a chance to look at the manual, I'll look at it, as well. For gapping the igniters, you're not comfortable with using a tape measure, so you typically use an Allen wrench or a drill bit of the same diameter that is the recommended gap for the igniters?
A. Yeah, makes it easier.

Q. Okay.
A. Because when you tighten them down, they can flare out on you so you got to watch that.
Q. Okay.
A. You got to --
Q. And the burner tips typically cleaned yearly, obviously the oil can get a little gummy and cause some issues. What issues -- be things such as, you know, a bad cone form?
A. Bad cone form --
Q. There's a blockage on the cone.
A. -- and then it's probably just not going to really light.
Q. Okay.
A. And for what they cost, instead of cleaning them, you just pitch them and put new ones in.
Q. Okay. On the furnace there is a control cabinet that's mounted to the side of it. Did you take a panel off or anything in the control cabinet to look inside of there, would that have been necessary to make adjustments?
A. After it was running for 15, 20 minutes we heard a contact chatter briefly and by the time we pulled it off, it didn't do it. And I know the way -- they're going to leave it off and just watch it because we ran it then for another 20 minutes or so and it never did it again.
Q. So it ran for 15 to 20 minutes. When you say contact chatter, could you describe in a little more detail what you --

A. If you know what electrical contacter is, you know, a secondary voltage will pull in, typically a high voltage to make like either the fan or the burner run.
Q. Um-hum.
A. There's a chatter, but there is two of them and we don't know which one chattered.
Q. So --
A. I believe --
Q. -- one of two contact --
A. Yes.
Q. -- makers were chattering. What are those two contact makers for, specifically?
A. One I know would be for the fan, the other one, off the top of my head, I do not know. If we had the make and model and the (indiscernible) diagram here, we could go through it real easy.
Q. Is that something that I would be able to get and we could go on -- or go through a bit more later? One contacter is for the fan, the other is for not sure. Okay. Contact chatter, describe audibly what that would sound like.
A. Just a -- just a chatter. They pull in and out, they're on springs.
Q. Okay.
A. So it's just di-di-di-di, like --
Q. Like a clicking?
A. Yeah, pretty much.

Q. Like that, on the table?
A. Yeah.
Q. Something to that effect?
A. That would be the best way probably to describe it.
Q. Okay.
A. That happened briefly and then we pulled it off and we were waiting for it to do it again, it didn't do it again, and --
Q. Okay.
A. -- after about probably a half hour we're like well, just keep on eye on it, check on it, because those guys stay on the ship 24/7.
Q. Upon observing the furnace and the installation and the area around it, did you notice anything that was a concern to you that could've been a safety issue or something, maybe, regarding the furnace or that you wanted to come back to and work on more?
A. No, just give it a final tune and check everything over.
Q. Okay. So you were still recommending a final tune-up on the furnace?
A. Just to double check because the only thing I could not check is there's -- we check for the soot in the air. I did not have that little piece of equipment with me, but being that I put the combustion analyzer on it, I was confident that it was burning just fine.
Q. So you wanted to come back to fine tune what, exactly, again?
A. You check for the smoke in the air. It's a little thing you

take 10 draws of the air, of the exhaust, and see how much -- it goes through a little white piece of paper --

Q. Um-hum.

A. -- and whether it's white or it's gray or it's black, you know, if it's black, it's burning bad, but our combustion analyzer would've picked that up as far as the seal and everything else. And we had extra electrodes and everything on order with the nozzle. Like I said, those nozzles were backordered until March yet.

Q. Could you describe the burner nozzle and your opinion, or oil nozzle, the condition of it?

A. They looked just fine.

Q. Okay.

A. Everything was burning nice.

Q. The nozzle, is that something that you would've changed out if you came back to fine tune it or was it in a condition where you felt it was safe and effective for another year's use?

A. It should be safe and effective, but being -- I mean, I think they're about 10 or 12 bucks apiece, we would've just changed it.

Q. Okay. So that's likely coming back to the boat, you would've changed the --

A. Yeah.

Q. I'd like to get into a couple of hypotheticals here. So what would it -- how is it impossible -- so we have these safety functions --

A. Um-hum.
Q. -- and features on the furnace. Could you describe a scenario, in your opinion, that would result in a furnace continuing to stay lit and if there were fuel being introduced to it and not go through a safety shutdown, how might something like unfold? Or have you ever seen something like that in a home furnace or another oil-fired furnace or anything like that?
A. The only thing I could see possibly running, I mean, it's controlled by a thermostat, so it turns it on and off. The thermostat would've had to stay on and I don't know how that thing lit. Let me think about it for a little bit. Did the fan motor go bad, but then the high limit should kick out. You'd have to have multiple failures, I think, for it to keep -- for that motor to keep running, you'd have to almost have multi-failures.
Q. Which motor, specifically?
A. The oil pump motor, the fan, the burner. So it's a -- there's a fan in there for the -- blowing the air against the cone --
Q. Um-hum.
A. -- for the nozzle and there's also -- it also drives an oil pump.
Q. So there's a small oil pump --
A. Yes.
Q. -- in the unit?
A. Yeah. Because that'll take your fuel from your ship, your

number two.
Q. Um-hum.
A. And it'll push it up to 150 psi or something like that.
Q. So you have to have some -- it would have to be multiple failures is what your opinion is?
A. I would think so. Between your high limit and your thermostat staying on.
Q. Okay. I'm going to describe a couple of ways that the furnace could potentially fail and if you could tell me the shutdown that would occur to protect the furnace --
A. Um-hum.
Q. -- and play just kind of like a back-and-forth game. It just helps me understand a little bit more your wealth of knowledge because you look at these things every day and I don't. So let's go through this. To understand the equipment, we have a pump in the unit that's driven off the same motor for the clean air inlet, the combustion inlet?
A. Yeah, pulling the combustion air in, yes, it'll -- that's the one that pushes the air. That's the burner assembly.
Q. Okay. So the burner assembly or the -- is the fan and the pump linked together, will they run together always?
A. Yes.
Q. Is that mechanical linkage?
A. Yes.
Q. Okay. So the --

A. Direct drive.
Q. Okay. If there were a leak or a failure in an oil fitting within that unit, you could potentially have fuel gravity -- I mean, gravity effect into the housing. Is that a true statement? Or how accurate --
A. I'm trying to think. It depends if it had oil in it. I don't know if it had oil in it under pressure, if it's pulling by gravity, because if you'd have a leak, it would then suck air. Versus fuel.
Q. The piping?
A. Yeah.
Q. The pump would.
A. Or is -- or are those oil lines in the boat pressurized. Because then if you had a leak then it could spill out.
Q. So I'll describe, so the main diesel fuel tank is up like 15 feet above this furnace.
A. Okay.
Q. And then it's plumbed in to the fuel tubing that's on the forward side of the boiler, it comes into the bottom of that combustion air box --
A. Um-hum.
Q. -- right there. So if there were a leak in a fitting in that or say some type of a failure, it's my opinion that fuel could potentially gravity feed.
A. Yeah, gravity feed. Yes. Yeah.

Q. If that were leaking in a location in there and then that leak were to be ignited, right, so if we have a pool of fuel, what safety shutdown would kick in primarily to secure the furnace from that?
A. I would think it would start that whole -- something, either the motor had shorted out or something. I mean, it's going to run because it sees its fire, but then if it gets hot, something's going to fail, more than likely, your controller. That'll shut down. But rather, your fire probably is ignited to the point where if you don't see it right away, you're going to have a catastrophic failure.
Q. Okay.
A. If there was -- yeah. If there was a leak on the piping coming into it.
Q. Okay. That high temp, when it -- that thermal cutout.
A. Um-hum.
Q. That sensor is in the combustion chamber of the furnace?
A. It's on the furnace itself.
Q. Okay.
A. Yeah.
Q. Something you could show me if we took a walk --
A. Um-hum.
Q. -- at some point in the future? Okay. So that's one possible cause, right, we have this fuel leak. What would cause a multi-point failure in a system like that potentially where it

would continue to run? And let's talk --
A. I've never seen one, so as far as multi-failures, to keep something running.
Q. Perfect storm, if you will.
A. Yeah.
Q. Anything maybe electrical or --
A. Well, something -- it almost -- without somebody intentionally wiring something direct, I don't know if it's really possible. I don't want to say it's not possible, but the probability is not there.
Q. Did you notice anything that had circumvented a safety control on the furnace?
A. No.
Q. Did you temporarily circumvent any safety controls on the furnace to get it fired up --
A. No.
Q. -- when you came on board?
A. No.
Q. And you saw no evidence, in your opinion, there were no overriding type devices or jumpers --
A. No, no.
Q. -- to circumvent those systems?
A. Because we fired it off, we looked in the combustion chamber to make sure there's no puddling of oil --
Q. Uh-huh.

A. -- because back in the day you can reset and reset and reset, reset, and they'll puddle in there --
Q. Okay.
A. -- so no.
Q. Does this furnace have a programmed -- a set programmed time for a pre-purge and post-purge?
A. Yes.
Q. Okay.
A. That's all in the controller.
Q. Okay. So no evidence of any safety devices being overridden?
A. No, there's really nothing -- besides a high limit or something, you really can't over -- you can't jump or nothing on this.
Q. You can jump with the flame eye.
A. I don't believe so.
Q. Okay.
A. I'd have to double check with the manufacturer, but that would be beyond me --
Q. Okay.
A. -- on how to do that.
Q. And I just want to be clear, I'm not saying any of those things happened.
A. No, no.
Q. I'm trying to understand every possibility --
A. Yeah.

Q. -- what could've occurred and the likelihood of it occurring, that's a different story or if it actually did, that's entirely different. I'm just trying to understand all the safety devices, to your memory, at this point --

A. Um-hum.

Q. -- in time, what could've happened. So we had pooling and we had fuel being slowly gravity-fed into the furnace, it would likely -- and just tell me is this a true statement or if you'd like to elaborate on it, but the furnace would, in theory, continue to run until the thermal cutout safety --

A. Something, something. I mean --

Q. Because the flame eye's not going to go.

A. -- if you had a fire in that compartment, because it's a bigger box around this burner, if you had a fire in there, you're going to suck that flame into that motor. Something's going to happen real quick. And I think you would even introduce enough soot, at some point in time that flame eye should shut down. It'll see -- it might see fire, but as soon as it gets -- they got to be kept clean.

Q. Yeah.

A. Because you got to realize, that's in the airstream, that flame eye, looking at the fire, it's not in the exhaust, so it should never get dirty.

Q. To your knowledge, the flame eye on this unit is -- operates in a failsafe condition, right?

A. Yes, always.
Q. Power loss, okay. The high-temp limit, how does -- is that just a little thermal couple with the capillary in there or what is that?
A. It should be a bimetal, bimetal disc.
Q. Bimetal disc?
A. Yeah.
Q. Can you describe how that works?
A. It's just a -- it gets hot, it warps, it opens up a switch.
Q. Okay.
A. They're usually round and they're held on by two screws.
Q. Okay. And this high-temp limit, where on the -- where on the furnace is that?
A. I would really have to look at the manual.
Q. Sure.
A. Yeah.
Q. Okay. So we have the gravity fed situation. Even if the furnace cut off and we still have the introduction to fuel into the furnace and had a sustained fire, obviously that's one thing I'm considering. Is there any other hypothetical or any perfect storm of a situation where you would have multi-point failures that would allow the unit to keep running?
A. Multi-point, no. If there's some solvents in the ship or something that it could've possibly sucked in, you know, like gasoline on the floor --

Q. Okay.
A. -- and it would go hit a water heater and you get the fumes because they --
Q. Okay.
A. -- accumulate, if something like that was done on the ship and it sucked it in, but that's -- it's not a sealed tight combustion chamber, but it's always sucking air from outside.
Q. Okay. After you left the vessel, did you get any texts or phone calls or e-mails from the vessel crew or Key Lakes or your office directly asking any questions about the furnace?
A. No, I texted Dave Hunt just to let him know it was up and running.
Q. Okay.
A. And then that's the only one I really talked to.
Q. Okay. But so once you left the vessel, she was running to your satisfaction, no one called to ask for additional service --
A. No.
Q. -- or anything like that?
A. Because it was running from then until they had the fire.
Q. Okay.
A. For almost a month, over a month.
CWO [redacted]: Okay. David, how are you doing in understanding this situation and what questions would you like to ask, sir?
MR. FLAHERTY: I appreciate it. Actually the questions you asked are quite through. But I do have a few.

BY MR. FLAHERTY:

Q. Sir, David Flaherty with the National Transportation Safety Board. Appreciate you coming in and answering our questions. If there is a shutdown of any of the safety -- like the flame is no longer there or something else happens within the furnace, is there any shutdown of the fuel supply to the furnace?

A. Yes, the -- because when the motor stops, the pump stops.

Q. But there's no valve or isolation valves that --

A. No.

Q. -- might automatically shut down?

A. I would have to look. There's a possibility that there's a solenoid valve, which I believe there is.

Q. Okay, that would be helpful.

A. It would be a normally closed valve powered open.

Q. Okay. So as long as the solenoid's charged, it's open?

A. Yes. I believe --

Q. Okay.

A. -- it has one, but don't quote me on it.

Q. All right, that would be good to -- we'll find out. When the engineers take out the burner assembly to change a tip or to clean it, are there any fuel lines that have to be disconnected?

A. Yes, one, because there's a main tube that runs to your nozzle to the front of the retention head.

Q. That shows it, but a tube?

A. It's a tube, yes.

Q. All right. What kind of -- a copper tube or --
A. Well, it's --
Q. -- some type of -- like, it's metallic.
A. I believe there's a copper tube that hooks to the back of the burner which has got a flare fitting on and then that's a solid tube with a threaded end for the -- that runs internal on the burner.
Q. Okay. And do you know what the thickness of that tube is or schedule?
A. Your Type L copper.
Q. Is it flex copper or does it have to be piped?
A. Is it a flexed from the piping coming in to the cabinet to the burner.
Q. I know it's a hypothetical, but if there was a leak on that copper tubing, is -- would that -- that leak obviously would be coming out under pressure and atomizing. If that were to ignite, and I would assume, you know, because there are lot of hot surfaces in there, would that be detected?
A. I wouldn't think so.
Q. All right.
A. Now you're talking --
Q. So that itself --
A. You're talking from the burner to the --
Q. I'm sorry.
A. You're talking from the burner to the piping coming in,

right?
Q. Right, the internal copper tubing that is connected to the burner.
A. No. But you would -- well, servicing and working on it, you would see it, I mean, if there is -- unless it all of a sudden just blew, but I mean, you would see a leak, anybody that would be around there on a daily basis or just keeping an eye on things.
Q. Right, right. But if there was a leak, essentially, none of the safety shutdowns, none of those would be activated based on that type of a leak, in your professional opinion?
A. No, because that would be prior to the actual burner.
Q. Okay.
A. I guess looking at it as gasoline coming into a furnace, the furnace --
Q. Um-hum.
A. -- itself has got the safeties, but from exterior furnace and your house to your meter, you would either smell gas or see it or whatever.
Q. Okay. And is there a heat detector that would shut the furnace off in case of a fire located above the furnace? I know some of the housing units have that.
A. A heat detector that would shut the furnace off?
CWO [redacted]: External, like --
MR. FLAHERTY: Yeah, external.
CWO [redacted]: -- you would have installed.

MR. FRANK: On the ship? You'd have to ask them.

BY MR. FLAHERTY:

Q. Yeah, all right. Let's see. Oh. So when you're -- for the burner tip, for cleaning it, it's every -- once a year. And then for the gap itself, once that's set, does it -- unless it's accidently hit or something like that, is there an occasion where that gap for the igniter would change?

A. Possibly, by vibration of the -- because there's one single bolt that holds down with a little flange that holds on the two electrodes and that would somehow vibrate loose, just from vibration of the equipment, but then --

Q. Right.

A. -- it's going to throw the gap off and it's not going to light.

Q. Okay. And then if you're -- before, you described that they had done something where they were concerned about the type of smoke coming out. Can you elaborate some more on that again?

A. We do a smoke test when -- oh, when they adjusted the damper.

Q. Yeah, when they were -- yeah.

A. When the stacks are so long and that they're cold, they got to heat up for about 15 to 20 minutes to get the proper draft, so we do our fine tuning with our equipment, combustion --

Q. Right.

A. -- analyzers and smoke tests. At initial light off you'll get this little -- just a little puff of smoke out of the damper

and if they adjusted that, that's locked down with a nut, but if they tapped on that, adjusted that, to give it more air, that could possibly cause it to soot up a week later, or not so much soot up, but got the photo eye dirty and that's when they went to go clean the head, the burner.

Q. Okay. Just out of curiosity, what color is the smoke when it comes out like that?

A. You really don't see any smoke, that's why we do a smoke test. Oh, on --

Q. Yeah, but they -- I'm sorry.

A. -- the light-off? Just a little --

Q. Yeah.

A. Just a little haze, gray.

Q. Okay, so it's not like -- it's not black smoke?

A. No.

Q. So it's like -- and it's not a white smoke?

A. No. Just a little --

Q. Okay.

A. -- haze, gray haze.

Q. All right. When they adjusted the -- did you -- when you were looking at the furnace on that day, did you notice a lot of carbon buildup?

A. No, I did not.

Q. Did they mention carbon buildup?

A. No, they just mentioned that they cleaned the head. The

burner head.
Q. Okay. So if there was carbon buildup on the sprayer tip, what would occur, what would be some of the symptoms that that's a problem?
A. On the sprayer, you probably wouldn't see it on the nozzler's tip, what you'd see it on is your photo eye, probably, if it was burning improperly or something.
Q. Okay, so the carbon buildup would be actually on the photo eye?
A. Either on the photo eye or -- I guess you can get it on the head. The thing would have to burn really bad for it to actually soot up. I mean, you got to think of a burner --
Q. Right.
A. Think of a burner the size of a pen going into like a 55-gallon drum.
Q. Right.
A. It's going to take a lot for that to soot.
Q. Okay.
A. And it's like --
Q. So if the -- is it common for these systems to build up a lot of carbon?
A. If they're set improperly, yeah, it's oil. Any gas, any fuel can soot. I've seen --
Q. Right.
A. -- natural gas soot up, which is the cleanest burning fuel

there is.
Q. All right. I didn't know that.
A. If you get an improper --
Q. I guess it makes sense, it's carbon.
A. If you get an improper air mixture with your fuel, just like any gas engine, you'll --
Q. Right.
A. -- get carbon on your spark plug.
Q. So if there's a lot of carbon, would it also go up the exhaust?
A. Yes.
Q. By chance, did you see any -- were you able to look up into the exhaust at all?
A. I looked into the drum of it, you know, the burner compartment and -- with a flashlight and stuff, and there was no carbon buildup in there.
Q. Okay. If carbon buildup occurred and the photo eye didn't shut down, what would -- outside of not burning efficiently, what are the other effects that would have on the furnace?
A. It would slowly start to soot, but if you had carbon buildup on your photo eye, it's not going to see the flame, you know, shut itself off.
Q. Yeah, shut down. Okay.
A. That's the only thing I don't know is why this thing wasn't running prior to them calling me besides that the electrodes are a

little off. I mean, why -- what happened that it shut down three times in a row and they couldn't restart it.
Q. Was that ever explained?
A. No, they just had that little puff of smoke, so they adjusted the damper and it burnt like a week like that or so and then it was dirty.
Q. Okay.
A. But what part was dirty, I don't know, because it was clean when I got there.
Q. Okay. Does the system record the alarms for when it turns on and off?
A. No, it doesn't have any features like that. This is a simple control box that I purge for a little bit. My igniters start sparking hard, I introduce fuel, I see flame, I stay running until thermostat tells me to shut off.
Q. Okay. And as it shuts off because something's wrong, is -- where does the -- does the system have an audible and visual alarm for the operator?
A. No, it just shuts down. You get cold.
Q. Okay.
A. And then --
Q. Okay.
A. -- to reset it, you got to push a button and after three tries, it's a hard lock and then you got to push the button until it blinks a color and then hold it for another like 30 seconds to

reset it.

MR. FLAHERTY: Okay. All right, that's all the questions I have for right now, thank you.

MR. FRANK: Okay.

CWO [redacted]: Thank you, David, those were good questions.

BY CWO [redacted]:

Q. So moving from that, I did have a follow-up and then we'll try to wrap this up. I know you're a busy guy. When you originally opened this furnace up to take a look in the combustion chamber and in the control cabinet, did you notice an accumulation of unspent fuel inside any portion?

A. No, that's why I checked before I fired off.

Q. Okay.

A. Because you could get a back draft --

Q. Okay.

A. -- or a hard light-off.

Q. What happens if you get a hard light-off?

A. Scares the shit out of you.

Q. Okay.

A. Just a boom.

Q. Okay, all right. So no indication of that or anything. And if you had a hard light-off, that's just -- it's a minor explosion, for lack of a better term?

A. Yes.

Q. All right.

A. But not a safe one, either. Yeah.
Q. Okay, all right.
A. No, that's why we -- that's why I open the back and check because if there would be excess oil, we would soak it up with rags or whatever to get out of there before we try to light that off.
Q. Okay. And you didn't see anything like that when you were working on it?
A. No.
Q. Okay. All right. And you don't know -- so the furnace was running prior to the 29th, so far as you're aware, the 29th of December, and then obviously at some point it didn't fire back up and the crew tried three times, didn't know how to reset it and gave you a call?
A. Yeah.
Q. I know they had asked for burner tips as replacement parts and then some new igniter parts.
A. Yeah, they keep -- they just -- it's a floating city and they just keep that stuff on hand.
Q. Okay.
A. That's just -- I think the ships have --
MR. FLAHERTY: I'm sorry. Yeah, if I could ask a real quick question.
CWO [redacted]: Of course.
BY MR. FLAHERTY:

Q. How long do those burner tips last?
A. In a situation like this, should last at least a year because you got to figure their heating season is short and it's only during layup.
Q. Right. And --
A. Really taking that burner, burner tip off, because there is -- there is a filter in the backside of that and the fuel is filtered prior to coming in that, like an oil filter, and then there's a fine screen.
Q. Did you look at the fuel lines that went into the furnace?
A. Yes, they were -- I believe that's called sledge (ph.) lock style, I think they're stainless. If I recall.
Q. And there's a -- is there a filter external to the furnace?
A. Yeah, upper left-hand side, next to the valve, to shut the fuel off for service.
Q. Now, does that -- when the furnace is installed, because it was installed about a year ago, correct?
A. Yeah.
Q. Did that influx strainer, was that installed at the same time as the furnace or did that come with that furnace?
A. The crew, I believe, took care of that part. I believe Tweet/Garot's part was just to set it. They piped the fuel and we did the startup.
Q. Okay, so the strainer was not directly connected to the furnace?

A. No, it doesn't come with it.
Q. Okay. When you were looking at the external piping, did you see anything that stood out?
A. No, I believe it was stainless. It just kind of impressed me, actually.
MR. FLAHERTY: Okay. All right, thank you.
CWO [redacted]: Thanks, David.
BY CWO [redacted]:
Q. So looking through my notes here, I think I've got a better handle on some of the safety features, a little bit better understanding of some of the things that can go wrong. Is there anything that I -- David or I haven't asked about or something that you feel we could be missing in regards to how this burner works and its safety devices or what could've caused the fire? I mean, is there anything that I'm not probing at that you feel we should talk about on this thing or any concerns that you have?
A. No. I mean, I think it's sucking outside air. So unless there is some sort of combustible fuel or whatever you want to say, combustible introduced at an airstream, you know, that could cause a back fire, back draft, and maybe lit something up, but that would be a loud explosion, I would think anybody would've heard that.
Q. If you had to guess the number one thing that could've caused all this to unfold, if it were the furnace?
A. Um-hum. You'd have to have a fuel leak somewhere and it

somehow got outside of that burner.
Q. To continue to go through the combustion process because, in your mind, the furnace would've shut down via one of its various safety features?
A. Yeah.
Q. Or mechanical failure due to heat --
A. Mechanical, yeah.
Q. -- deformation or something like that?
A. Yeah.
Q. So you really feel confident that there was some type of fuel, uncontrolled fuel loss in some way, shape or form, likely. I'm not saying --
A. Yeah, there would almost -- yes, there would almost have to be if this was the origin of the fire.
Q. There's one other question, I have to go back to my notes here, regarding that fuel system. So I know we have, you know, the ship's piping, we've got a bunch of Schedule 40, you know --
A. Um-hum.
Q. -- running to the duplex strainer, it comes in through those and then it comes up -- or down the side of the furnace, there's a ball valve, quarter turn --
A. Something like that.
Q. -- fuel isolation valve.
A. Yeah, yeah.
Q. Comes down, does a 90, comes up through the bottom of the --

or no, comes in through the side, excuse me, the side of the furnace there and into that control or into that burner assembly cabinet. Once that stainless steel tubing is in there, it then reduces down to what you said you believe to be a Type L copper, like a flexible copper tubing?

A. Yeah, like a quarter inch, just line.

Q. And this quarter-inch line and there's a little ferrule that connects it to --

A. It's a flared.

Q. It's flared, okay.

A. Yeah.

Q. And this flared fitting connects directly to the fuel pump?

A. Yes.

Q. Okay.

A. Actually, I don't know if the -- I don't know exactly how they got it pumped to the fuel pump. The copper line would come from the fuel pump. So you come in to the fuel pump with your fuel from the ship from the outside of the fuel pump, leaving the fuel pump there's a quarter-inch line going to the burner.

Q. So there's a quarter-inch --

A. That is part of the burner assembly.

Q. Okay. So I have to correct my notes here because I may have misunderstood.

A. Yes, I -- yes, I didn't explain that good.

Q. Oh, no, that's perfectly fine. I'm just trying to make sure

I have facts as you and I understand them. So we have the fuel line, a stainless steel tubing comes into the unit and this stainless steel tubing is shipyard or shipboard provided --

A. Um-hum.

Q. -- right? And that comes in to -- where does that tie into, once that stainless tubing comes in, does that go to the fuel pump?

A. Yeah, it's got to go to the fuel pump, but I don't know if there's anything in between that or if they hook directly to it.

Q. Some type of reducer or something --

A. Or they had an offset with a flexible style line or something. That I don't know.

Q. Okay, okay. So the main -- you're going to have to bear with me a minute.

A. Yeah.

Q. I'm going to take a few notes on this extra page here.

A. I think they had it hooked solid direct. Because it actually impressed me how they piped it.

Q. So stainless tubing enters the -- and what's the proper term?

A. Burner or the fuel pump?

Q. Well, enters the burner cabinet.

A. The burner cabinet, yes.

Q. Then I'm just going to write, there is a connection to the pump?

A. There's going to be, yeah, some sort of connection.

Q. To your knowledge, from the pump to the nozzle?
A. Yeah.
Q. I'm choosing my words very carefully. The pump to the nozzle is likely a quarter-inch copper flexing -- flex tube?
A. Well, it's a soft copper line.
Q. Soft copper line. Soft, just meaning that these can be manipulated?
A. You can bend them.
Q. Okay.
A. Because they're going from one point to -- then they adjust a little bit.
Q. It's likely a quarter-inch soft copper line. Did you notice any sharp bends in that soft copper line, anything?
A. No. Because you just loosen it and you swing it out of the way to pull your burner assembly out the backside.
Q. Yeah, it's just like breaking a coat hanger, if we manipulate things enough times --
A. Yeah.
Q. -- we can have a mechanical failure, right?
A. Yeah.
Q. If this is something that's been disconnected a few times, is there ever a recommendation to replace that line or is it visual inspection that you do?
A. I usually do a visual inspection. If it kinks, you obviously know you got to replace it because you just kinked off your fuel

source.
Q. Sure. So you didn't notice any sharp ends.
A. No.
Q. Do you recall if you noticed any flexible fuel lines, nonmetallic? Do you recall?
A. No, no.
Q. Do you say no, that you're sure that you didn't see it or no, you're --
A. Not to my knowledge.
Q. Okay.
A. Because you're talking like a braided stainless hose or something like that.
Q. I'm writing he doesn't recall --
A. Yeah.
Q. -- any nonmetallic. You don't recall any nonmetallic hoses. All right. So for right now, that's the questions that I have. I think once I get through the manual and I understand these safety features a little more, it might be incredibly helpful if -- if you get a chance, when you sit down, I can show you some pictures.
A. Yeah.
Q. And maybe that will help bring this thing into -- down to a level where I can understand it completely. I think I have a good understanding now, but the pictures are very helpful. Also, part of showing you the pictures is there may be something that jumps out at you as whoa, whoa, whoa, this isn't the way I saw it.

A. Um-hum.
Q. Obviously, there was a fire, of course, but things that may jump out or something that you may say hey, look, you might want to focus in on this. That would be very helpful to me.
A. Um-hum.
Q. So if you're open to sitting down for a few minutes again later this week or something or next week, going through some photos, maybe we get some more documentation together and the plans and you and I can go through and check the safety features, and if you're busy it doesn't necessarily have to be you, but I would like for you, at a minimum, to look at some of the pictures with me --
A. Yeah.
Q. -- so you can see what she looks like now and see if anything jumps out at you as "this isn't the way I left it" or something to that effect.
A. Yeah.
Q. If anything occurred and if it looks the same, just burnt, that's fine, too.
A. I was going to say if you have the pictures today, we could go -- we could try to find a manual and can lay everything out and go through it.
Q. I would love to do that and I -- I just -- first off, and I'm going to speak on behalf of David, as well, very appreciative that you made the time to sit down with us today --

A. Um-hum.
Q. -- to begin with and you've been very cooperative and your demeanor is excellent, so I really appreciate all of that and you've given us some really good information to kind of mull over and rule things out or maybe focus on an area, potentially. Is there any time today that you would like to go through a couple of pictures that you would have available?
A. Right away.
Q. Right away?
A. Yeah.
Q. I need to run back to my office and grab the computer and my hard drive to take a look at some photos. See what time it is now. Right now it is --
A. I can get a hold of Greg, see if he can get us the manual on it because I imagine the manual that's on -- the manual on the ship didn't have a whole lot of --
Q. It was pretty small and pretty --
A. Yeah, it's that -- I'm sure it's not in good shape anymore. It was in the control room.
Q. I have copies of the originals from the control room.
A. Oh.
Q. I do have that. I'll tell you what, it's 9 o'clock now. Where do you have to be, what do you have to do?
A. Well, the rest of the day, I'll be going to Green Bay for doing the next job, whatever.

Q. Okay.
A. I'm in service, so I'm all over. Tomorrow is Darien, southern Wisconsin.
Q. Nice.
A. Thursday is Florence.
Q. So you're on the road quite a bit.
A. Yeah.
Q. What's an average workday for you hours wise?
A. Typically, 9 to 10.
Q. Okay. Were you out -- 9 to 10?
A. Well, 9 to 10 hours --
Q. Okay.
A. -- per day.
Q. Saying 9 to 10, my goodness.
A. No, no. I try to start at 6:00 in the morning.
Q. Good for you.
A. Six in the morning and then we whatever, you know.
Q. Okay. Worried about your health and well being there for a second. So yeah, look, I can run back to my office, I can grab my laptop and my hard drive to show you some pictures. If you can -- I'll bring in the copies of the documentation that was on board, see if that's helpful at all --
A. Yeah.
Q. -- and kind of reconvene here in a little bit. It's just after 9:00 now. What do we say, like, 9:45?

A. Yeah --

Q. Back in here?

A. -- I'm just going to go and grab my iPad and find a manual or try to get one and --

CWO [redacted]: Okay, that sounds great. David, would you like to -- me to conference you back in or do you want me -- how would you like to proceed, sir?

MR. FLAHERTY: Well, is there any way you can have the -- if you can send me the pictures and then we could kind of go over them, I can follow along as you're going over them with him.

CWO [redacted]: Yes. So I put a PowerPoint together yesterday dealing with some data limitations with the Coast Guard network and getting that over to you and we have a little technology issue at the office right now. So what I can do is I don't want to keep Jon waiting too long, let's shoot for 9:45 here. I'm going to run back to the office, I'm going to fire off that PowerPoint, it's not a refined product, but I think it --

MR. FLAHERTY: That's fine.

CWO [redacted] -- can give you a gist -- hopefully, you can get that via e-mail. I'll fire that off and then I'll call you back here at quarter to 10:00, my time.

MR. FLAHERTY: Okay.

CWO [redacted]: All right. Well, at this time, David, thank you for conferencing in and Jon, thank you so much.

MR. FRANK: Um-hum.

CWO [redacted]: This will conclude the first part of the interview.

(Whereupon, the interview was concluded.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF: *ROGER BLOUGH* CASUALTY
IN STURGEON BAY, WISCONSIN
ON FEBRUARY 1, 2021
Interview of Jonathan J. Frank

ACCIDENT NO.: DCA21FM015

PLACE: Sturgeon Bay, Wisconsin

was held according to the record, and that this is the original, complete, true and accurate transcript which has been compared to the recording accomplished at the hearing.

[redacted]

Transcriber