UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

Investigation of:	*	
	*	
ENGINE FAILURE ABOARD	*	
OSV *OCEAN INTERVENTION*	*	Accident No.: DCA21FM012
ON APRIL 21, 2021	*	
	*	

Interview of: HUNTER TIEKEN
Service Manager
Force Power Systems

SCOTT CROCHET,
Special Projects Technical Communicator
Force Power Systems

Via Telephone

Friday,
May 21, 2021

APPEARANCES:

BRIAN YOUNG, Marine Accident Investigator
National Transportation Safety Board

[redacted] Chief Warrant Officer (CWO)
United States Coast Guard

I N T E R V I E W

(1:00 p.m.)

MR. YOUNG: My name is Brian Young. I'm with the National Transportation Safety Board. It is 1:00 on the 21st of May, East Coast Time, and we are conducting an investigation on the engine failure aboard the *Ocean Intervention*, and today we are speaking with the service technicians that had overhauled the damaged engine. And my last name is Young, Y-O-U-N-G, and to go around the room with the United States Coast Guard we have?

CWO [redacted]: Chief Warrant Officer [redacted]. The last name is [redacted].

MR. YOUNG: And Scott if you don't mind introducing yourself?

MR. CROCHET: Scott Crochet, Special Projects Technical Communicator for Force Power Systems,

MR. YOUNG: Spell your last name.

MR. CROCHET: Oh, C-R-O-C-H-E-T.

MR. YOUNG: Thank you, and Hunter?

MR. TIEKEN: Hunter Tieken, T-I-E-K-E-N, and I'm the General Manager of Force Power Systems.

MR. YOUNG: Thank you very much. And as we discussed previously, we just want to advise you that we are recording this and we will produce a transcript, and we would just like you guys to acknowledge you understand that we are recording this?

MR. TIEKEN: Yes.

MR. YOUNG: Okay. Pre-lube pumps great, thanks.

INTERVIEW OF HUNTER TIEKEN AND SCOTT CROCHET

MR. YOUNG: So, maybe, starting with Hunter as the General Manager, can you maybe just describe your position with Force Power, your experience in the industry, and about how long you've worked on diesel engines?

MR. TIEKEN: I've been in the industry for around 15 years now. I have worked as a technician for about three years, and the rest of the time was in various roles of outside sales, product support, and then into service management and eventually in the General Manager of the company. And I've, got a degree, or a Bachelor of Arts and Science from Louisiana State University.

MR. YOUNG: Okay, thanks. And just to understand Force Power, that's a separate company from Oceaneering completely? Is that correct?

MR. TIEKEN: That is correct. We are a service provider for Oceaneering.

MR. YOUNG: Okay. And does your company work specifically and solely on Caterpillar diesel engines or do you do all different makes and models?

MR. TIEKEN: We do several makes and models. We, we do mostly what they call high speed, but Caterpillar, Detroit Diesel, and Cummins are our main three engines.

MR. YOUNG: Okay. And Scott, if you don't mind, maybe telling a little bit about yourself as well regarding your expertise, or experience in the industry?

MR. CROCHET: Roughly about 22 years in the marine diesel engine business. About a year and a half of, two years on Detroit, and then nine years I've spend in the field as a mechanic on Caterpillars, and then I've been in the office for, for now, for another 10. I've spent some time as Service Manager here at Force Power, and, yeah, that's it.

MR. YOUNG: Okay. So one of the questions I had was, I saw the Failure Analysis Report and it seemed to come from a company called Louisiana CAT. How is Louisiana CAT related to Force Power?

MR. TIEKEN: Louisiana CAT is our parent company.

MR. YOUNG: Okay. And would you estimate or say that you are Oceaneering's, kind of, go-to company when it comes to their main engine repairs and service?

MR. TIEKEN: As far as we know on the Caterpillar's, yes.

MR. YOUNG: On the Cats, and can you estimate about how many different vessels you have worked on for Oceaneering?

MR. TIEKEN: Seven, I would say seven --

MR. YOUNG: Seven.

MR. TIEKEN: -- is a guess.

MR. YOUNG: Okay. And would you say that it is a descent working relationship between your company and Oceaneering?

MR. TIEKEN: I would say so.

MR. YOUNG: Okay, good, and you do understand that the engine that had failed out in Hawaii was a 3516. Is it fair to say that

Oceaneering has more than one of these engines?

MR. TIEKEN: That is correct.

MR. YOUNG: Can you guys remember, on board the Ocean, I'm sorry, the *Ocean Intervention*, the engine configuration, how many 3516's they had aboard, or if there was a mix of different engine types aboard?

MR. TIEKEN: There are, on that particular vessel, there are two 3516's, and one 3508, which is a smaller number of cylinder 3500 model.

MR. YOUNG: Okay. And would that be the number two engine in between the two outboard 3516's?

MR. TIEKEN: That is correct.

MR. YOUNG: Okay. Understood the vessel was at anchorage awaiting orders when the engine failed, the number three generator. From what we understand there was about, just over 20,000 hours recorded in the logbook. Could you just, kind of, describe, so we can understand what that means that, is it 20,000 hours on the engine, or 20,000 hours since the last overhaul, or what does that number mean to you guys?

MR. TIEKEN: From what I understand, the 20,000 hours would be from last major overhaul.

MR. YOUNG: And what does a major overhaul consist of for a CAT-3516?

MR. TIEKEN: Generally a, a, remanufacture cylinder heads, cylinder kits, injectors, turbo-cartridges, after cooler, water

pump, oil pump, and any other auxiliary components that may not meet (indiscernible) established guidelines.

MR. CROCHET: Main bearing drive.

MR. TIEKEN: Main bearing, yeah, all bearing, all wear bearings.

MR. YOUNG: Thanks, okay, and I'm sure, I know this is available in the maintenance book and all, but what sort of interval is required for a main bearing inspection or overhaul for these engines, if you guys know?

MR. TIEKEN: Right off the top of my head, I believe it's around 22,000 hours.

MR. YOUNG: And would it be fair to say then that this engine was approaching that 22,000-hour, kind of, maintenance interval for the main bearings?

MR. TIEKEN: It was approaching it, but it had not gotten there yet, from what I'm, from what I'm looking at.

MR. YOUNG: Understood, yeah, okay, great. We had received some statements from the crew, and it sounds like they were trouble shooting a series of hunting issues with the generators/main engines, and it looks like they may have been looking at some of the generator control modules, and calibrating them somehow, and trying to settle down the generators. In your guys' experience to you think the hunting was either some sort of a premonition to a possible failure, or do you think it had anything to do with the damage and failure that you guys had seen

after the engine overhaul?

MR. TIEKEN: Well, I'm going to break that kind of in two. So, I guess one would be, are you asking, do you think that anything that we're doing in the troubleshooting caused the failure?

MR. YOUNG: More as if the hunting --

MR. TIEKEN: -- if, if the, well I'll answer that question. If, if so, no. I don't think any of the troubleshooting and things they were doing caused the failure. I do think, with the benefit of hindsight, I think there was starting -- they were starting to have a mechanical failure that was not showing up on any of the computer systems or on-board diagnostic systems. I, that, but that is which the benefit of hindsight. At the time, I would say that would have been a very hard diagnosis.

MR. YOUNG: Good, understood completely, and that's, you answered, my exact question was, now looking back at it, do you think the hunting is indicative that there was any sort of problems? I mean, I had sailed Chief for several years, and seeing a hunting engine, the first place we would have looked at was in the generator control panel, and, you know, most likely, the tack, or the magnetic pickup, and trying to get the rpm's straightened out, but now that, you know, you see the big-picture, do you think that the hunting may have been indicative of any sort of problem, within the engine?

MR. TIEKEN: I do believe that. I think, and kind of like

you said, I think that it is not a normal issue, and it's something that I don't recall running across, you know, it's not something that will pop straight in my head as something that has happened in the past, but looking at the big picture, I, and putting all the pieces together after the fact, I do believe that, that the bearing was starting to adhere, possible, at that time, and may have been causing it to fluctuate in rpms.

MR. YOUNG: So maybe that bearing, as it was starting to adhere, was actually affecting the speed of the engine because it wasn't rolling to the proper speed.

MR. TIEKEN: That would, that would be something that could, that theoretically, that's what I would think.

MR. YOUNG: Um hmm. That makes sense. Okay, okay. In addition, or beyond the hunting problem, then, maybe now looking at the engine failure itself, and seeing a connecting rod get ejected out the side of the engine, is that anything either one of you have ever seen before on any of the Caterpillar engines?

MR. TIEKEN: Yes.

MR. CROCHET: Yes.

MR. YOUNG: Would you say, in your experience, that the ejection of the connecting rod, or, yeah, maybe can you talk about some of the reasons why you have found that to be the case why (indiscernible) from the crank case.

MR. TIEKEN: And -- you kind of broke up a little bit, but I think answering that, usually with a, on an engine that'd running

at a higher speed, and you do get a bearing failure, and things start to seize, it is, I, it is common somewhat, that, you know, the energy has to go somewhere and the only place for it to go is out of the (indiscernible).

MR. YOUNG: Right, right, and in your experience, could you just kind of estimate about how many of these CAT engines you may have seen a thrown rod?

MR. TIEKEN: Well, I'm going to say in 15-years, I've probably, you know, I've probably seen 20?

MR. YOUNG: Oh, wow.

MR. TIEKEN: But, I mean, I see a high volume of engines and most people don't call us whenever the engine's running perfectly well.

MR. YOUNG: Of course, yeah. No, that makes sense. Yep. So after the engine failed, I understand that a replacement engine was put in its place. The new engine that was put aboard the *Ocean Intervention*, was that a brand-new engine? Or a refurbished engine? Or one you had sitting on the shelf?

MR. TIEKEN: It was a refurbished spare engine that Oceaneering owns.

MR. YOUNG: Oh, okay. And were you guys involved with the replacement?

MR. TIEKEN: Yes, we were.

MR. YOUNG: And then, is it accurate that the damaged engine was shipped back to Louisiana?

MR. TIEKEN: Correct.

MR. YOUNG: And that's where you guys did your, kind of, tear down and generated the Failure Analysis Report?

MR. TIEKEN: Yes. Scott actually went to Hawaii and looked, viewed it on-site before it was shipped back, just so we knew what we were, what we had coming, and then when it got here, that's whenever I, kind of, stepped in with, with some people from our parent company and that's where we put everything together, at that time.

MR. YOUNG: Okay. And then, once everybody, including your company, as well as the parent company, looked at the damaged engine. What would the improvements, or enhancements, or updates, that were suggested to Oceaneering, specifically the Oceaneering *Intervention*, *Ocean Intervention* for their engine?

MR. TIEKEN: Well, a few things that we, and we're still in the stages of kind of going, trying to see what we can do to prevent it, but a few of the things that we changed, we added a pre-lube systems to all their existing vessels now. So, so now their engines will, before start-up, will have a positive oil pressure. We feel that could, you know, help extend the life of the bearings. And another thing we're looking into at this moment, but we are not, we're not there yet because I'm not working with Caterpillar on it, is looking at a, an oil mis-detection system in the crank case, which would, it will not, it will not catch the fail, the failure, but it could, it could

lessen the effects of it. It will, it will tell you that it is starting to fail --

MR. YOUNG: Um-hmm.

MR. TIEKEN: -- and then could, and then in turn could lessen the affects and hopefully stop it before a rod comes out of the side.

MR. YOUNG: Understood. When it came to the suggestion of installing the pre-lube pumps and system for these engines, was that for all the Caterpillar engines on the Oceaneering vessels, or specifically the 16-cylinder engines?

MR. TIEKEN: I think we specifically wanted to go with the 16-cylinder engines just due to the, the amount of rolling inertia with the big generator sets and the speed at which they run. It's not, it is not a, noted by Caterpillar that they have to have them, but we just felt due to what we saw, it could possibly be an improvement to help extend the life of the bearings.

MR. YOUNG: Okay. And that was my next question, was beyond just yourself, and your company, and your parent company, has some sort of notification gone out to, say, Caterpillar on this incident?

MR. TIEKEN: Not that I am aware of, but I would have to check on that.

MR. YOUNG: Okay. And I guess, where that was going, was like, if you were aware if there were any sort of service bulletins from Caterpillar advising people who have these engines

that it could be an issue?

MR. TIEKEN: No, there are, to my knowledge, and we went through all of that, there were no specific bulletins on that. This is more of just a technician intuition on having dealt with Oceaneering, and their particular equipment that we felt could be something that could help in the future, as far as the pre-lube systems.

MR. YOUNG: Okay. And is the per-lube pump set to run for a designated time prior to an engine start? Or is it something that runs all the time?

MR. TIEKEN: It's prior to the engine's start, and I'm not a hundred percent sure how they have them rigged up, but I do know that basically it's got a, when you hit the start button, it's going to engage the pre-lube pump, it's going to give positive oil pressure for a certain amount of time, or to a certain amount of pressure, and then it's going to allow the engine to start after that.

MR. YOUNG: Okay. And, other than the *Ocean Intervention*, would it be fair to say that other vessels within the Oceaneering fleet have received this update, or upgrade, or modification?

MR. TIEKEN: I believe, yes, and I'm not a hundred percent sure. I think the *Ocean Intervention* Two has already, and I think, I don't, I'm, you'd have to talk with the Oceaneering representative. I'm not sure of their game plan on, on, and instituting it in the future, but I do know it has been done on

the *Ocean Intervention* II.

MR. YOUNG: Okay. Have you seen, in your, both of your experiences with 3516's, do the majority of these engines have pre-lube pumps, or is this rare, or is it something that is including, included in more modern units?

MR. TIEKEN: It's, it's an option from the factory. I would say, I mean, just off the top of my head, I would say 20 to 30 percent of the units I've seen out there have them. The rest do not. It just, it's really more of a customer, it's kind of like how much do you want to upgrade, you know, like in a car, how many upgrades do you want to have? You know? It's not required by Caterpillar, but, you know, it's, it is something they offer and, and we felt it could, could help with longevity of bearing issues.

MR. YOUNG: That makes sense. Would you think, and this is a little bit of a hypothetical question, that a lot of the bearing wear, or bearing capitation, occurs during start up? Is that fair to say that that's kind of the time where the bearing takes the beating at the most?

MR. TIEKEN: That's, you know, that would be very hypothetical and I'm going state purely my opinion on that, but yes, I do feel like that the bearing is going, you know, especially if it has been sitting for a while without running, I do feel that upon start up, you would have the most, the most wear, but that's purely my opinion.

MR. YOUNG: Right, right. We were looking, and we have

received some analysis from the lube-law (ph.) system, and I think some of the more recent samples are still in the mail and haven't gotten received just yet, but prior to, and I think it was July and August and September, the oil analysis looked perfect, no action required. Do you guys see any issues with the lube-law system on that engine when you were there on scene?

MR. TIEKEN: No, not that I'm aware of.

MR. YOUNG: While you were there on the *Intervention* in Hawaii, was there any sort of inspection done on the number one main engine, which is the identical engine?

MR. TIEKEN: Yes.

MR. CROCHET: No, I mean, it was in the process of being overhauled.

MR. TIEKEN: Oh, yeah, no, no, yeah, it was, they brought it in, and they did a schedule overhaul at that time, at that down time.

MR. YOUNG: Okay. So at that time all the bearings were replaced, and did you guys do that overhaul?

MR. TIEKEN: Yes.

MR. CROCHET: Yeah, these --.

MR. YOUNG: Did you see any --

MR. CROCHET: -- Yeah, these --

MR. YOUNG: -- I'm sorry, go ahead.

MR. CROCHET: I'd say, these overhauls were scheduled when they actually were performed, it just so happens that that one

engine failed --

MR. TIEKEN: -- before we could perform the scheduled overhaul.

MR. CROCHET: Right. Correct.

MR. YOUNG: Right. When you did overhaul the number one engine, did you see any similar wear in the bearings, to the extent that you saw on number three?

MR. TIEKEN: I can't answer that one. I don't know. Scott looked at them. I would have to, I'd have to inquire with the, with someone else. I can possibly get that information for you.

MR. YOUNG: Okay. And then, understanding number two main engine, or generator, was a smaller engine, a 35 (indiscernible) weight, there was no consideration because of the smaller size to include it, or add any lube-loss (ph.), pre-lube pump, correct? Is that correct?

MR. TIEKEN: Correct, due to the, we haven't had any issues with those, and due to the size and the nature of it, we felt it wasn't needed.

MR. YOUNG: Reading some of the evidence that has come into us, it looks like the fuel was also sent out for sampling. Have you guys seen any results, well apparently, it's still in the works from what we understand, but have you guys received any information about the quality of the fuel that was being burned that, that time?

MR. TIEKEN: I don't, I don't have that, but I do believe, I

want to say I remember someone at Oceaneering having that information, and to my knowledge, the qual -- it -- there was no issues, but you, I would recommend asking an Oceaneering representative about that.

MR. YOUNG: Understood, will do. And do you guys recall if it was a standard diesel that they were burning, or MGO, or MDO?

MR. TIEKEN: What? Repeat that. You broke up a little bit.

MR. YOUNG: I was just wondering what kind of fuel they were burning, if it was Marine Gas Oil or an MDO?

MR. TIEKEN: Just standard diesel fuel from what I know, you know. I don't know the exact grade of the fuel, but, and I'm not educated on the different grades, but I'm pretty sure, you know, the standard red diesel fuel --

MR. YOUNG: Right.

MR. TIEKEN: -- that you can run in a vehicle as well.

MR. YOUNG: Okay. Yep. There was some mention in the Failure Analysis Report about the vibration damper fluid test results showing that just by the color of it, it looked like it had been broken down. Can you just talk a little bit about what the effects of hat would be if it was broken down?

MR. TIEKEN: Well the, as it breaks down it gets darker so I guess the affects could be if you would have total degradation of it, you, the, typically what you'd see is you'd get a number one main bearing failure, which would be a root cause number one main bearing failure, which is why we even kind of looked into it in

the first place while we were going through it. It turns out, we feel it wasn't, the number one main bearing was not the root cause, so we really probably did not even need to go down that road, but we did. So, and another, another possible failure of a, of a degraded vibration damper could be gear train, generally front gear train failure which did not occur in this situation.

MR. YOUNG: Right, right, and it did look like from some of the pictures that back towards the back end of the engine, I think it was either 15 or 16; that bearing looked in pretty rough shape.

MR. TIEKEN: Yeah.

MR. YOUNG: And do you know if there is any way that vibration damper fluids could be sampled frequently, or is that some sort of test that could be done on some regular basis?

MR. TIEKEN: Well, the particular dampers they had, the only way to test it, it would be postmortem, basically.

MR. YOUNG: Okay.

MR. TIEKEN: You'd have to destroy the damp -- you'd pretty much have to destroy the damper to get it. There are some models that you can test it, but it is not a very common practice. Generally dampers run for several lives of engines, and in my experience, we rarely have issues with them, on the Caterpillars.

MR. YOUNG: Would that be during an overhaul some piece of equipment that would be completely replaced and changed out then, instead of, you know, drain the fluid and, and send it back in service?

MR. TIEKEN: Umm, generally replacing them, and again, I'm going off the top of my head, if you have a broken crank shaft failure, where the crank shaft fails at, and generally at a 45-degree angle in one of the journals, that usually tends to lead to a vibration damper issue, or a number one main bearing failure that it would be the root cause, or a front gear train. Other than that, if you don't have those tell-tale signs, those, those dampers can be used for several lives of the engine.

MR. YOUNG: Okay. Another area of concern in the report was the engine isolators and may have been brought to our attention that maybe they were a little bit worn out. Do you know if that was something that was inspected on the other engine as well, like, between number one and number three, and how they were relative to each other?

MR. TIEKEN: I do know that whenever we were done with all the overhauls, we did go through all the isolators and made sure everything was up to date. I do believe, and again I wasn't there, but talking, from what I remember, talking to one of the technicians on the ground, I do believe that, at the time when we first got on the vessel, I do believe some of the other engine isolators were starting, starting to degrade, and needed, needed replacement.

MR. YOUNG: And just so it's kind of clear and on record, what are the effects of having worn engine isolators?

MR. TIEKEN: Well, the biggest worry I would have is that

you're getting unwanted vibration into the system that could be, that could be causing abnormal wear anywhere in the engine, particular, and, as well as the main bearings, rod bearings --

MR. CROCHET: And generators.

MR. TIEKEN: -- generate, yeah, the generator. You know, you can get, any, anytime you put an outside source of vibration into that scenario, it's never really good.

MR. YOUNG: Right, right, sure. Are you aware if anybody has ever done any sort of vibration analysis aboard these vessels? I know I'll ask that to them, but is it something that you, maybe you overheard?

MR. TIEKEN: I am not aware of that.

MR. YOUNG: Okay. So the damaged engine that has been transported back to Louisiana, what's the plan for that engine? Is it going to be rebuilt, or scrapped?

MR. TIEKEN: That, that engine is, already has been rebuilt with, with new blocking crank shaft.

MR. YOUNG: A whole new block, huh? That was, I was wondering how that was going to be repaired.

MR. TIEKEN: Yeah, it, there are cast blocks on that size engine, so there's really no repair for it. You just have to go with new.

MR. YOUNG: And would that become a spare for the fleet then, and ready to ship out as needed?

MR. TIEKEN: Correct.

MR. YOUNG: Oh, okay. Do you see, have you seen anything since this incident from Caterpillar, anywhere, noting this accident, or making any sort of improvements, updates, or notification to their customers?

MR. TIEKEN: Not that I'm aware of.

MR. YOUNG: If you were to have, let's say, an issue like this, a technical issue that does raise you some concern, and you bring it to your parent company, and even they may see a potential problem with this class of engine, who, who could they talk to within Caterpillar? Some, would it be their main office in Illinois? Or do you have a representative, like a service manager or something from Caterpillar? --

MR. TIEKEN: So, from what I understand, so the technical communicators at Louisiana Caterpillar, they have access to a, it's a, it's a network that they can do inquiries and go, and I believe it goes to engineers, more or less of that capacity within Caterpillar. And if there is an issue, they'll, they'll pass that one to those engineers and from what I understand, and again I'm not a hundred percent on this, but I believe if those engineers get enough inquiries throughout this database of a particular problem, then they'll, they'll open up, I guess, like a report on it and start going through it. I don't recall anything specifically on this failure. I don't know if this failure would have been more of an isolated incident. I'm not sure of that, but I have not seen anything, and the only contact Caterpillar has had

on this is, we were dealing with them to look at possibly retrofitting an oil miss detector system and they, we've been in contact with our parent company and they've been into contact with the engineers at Caterpillar to see if that is even feasible.

MR. YOUNG: Okay, okay, and if there were any sort of recommendations or, let's say, safety improvements, or books, service bulletins, are you connected through their network that you would receive these notification?

MR. TIEKEN: Yes, they would, they would come through and we could go into the CAT-system and look at any service bulletin that would pertain to any particular serial number.

MR. YOUNG: Okay, okay, and then, your Failure Analysis Report, it does, kind of, show the root cause of the accident, showing that the, the bearing obviously got hot and adhered to the, the connecting rod. Is there any further description, or anything since the report that may help us understand what may have caused it, and I know there's a lot of hypothetical issues, such as, you know, bad fuel, or something liquid in the, up top in the head, or just the bearing overheating, but anything else you've learned since that report has come out that may help us understand what may have caused this?

MR. TIEKEN: There's not more information available and due to the nature of the failure, with, it, it makes it quite difficult to ascertain exactly what it was. You know, we can narrow it down a root, to that particular bearing failure, but to

go beyond that, we don't have the information at this time.

MR. YOUNG: Okay. And there was a very nice report put together with a lot of pictures for the number three generator. When the number one was overhauled, was there a similar set of pictures taken so, maybe for comparison, we could compare it, engine one versus engine three?

MR. TIEKEN: Not that I am aware of, but again, I'm going have to, I'm going to have to inquire about that.

MR. YOUNG: Okay. And, with the report that came out, we've received a PDF copy. As we start putting together the pieces of the puzzle up to this investigation and trying to determine the facts on it, would it be possible to request a few of the pictures in high-resolution so we could include them in our report?

MR. TIEKEN: Yes, that's fine.

MR. YOUNG: That would be best to work through [redacted] to maybe email you directly?

MR. TIEKEN: That would be fine.

MR. YOUNG: Okay. Great. I don't have any other further questions. I don't know from the Coast Guard, [redacted], if you have any questions?

CWO [redacted]: No, I don't.

MR. YOUNG: And for Hunter and Scott, I don't know, did you have any questions for us as to the investigation procedure or where we're going with this, or how we do our work?

MR. TIEKEN: I don't. I don't know if Scott does.

MR. CROCHET: No, sir.

MR. YOUNG: Okay. I'm going to stop the recording and we'll call it done for the interview and we certainly appreciate your time today.

(Whereupon, the interview was concluded.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF:	ENGINE FAILURE ABOARD OSV *OCEAN INTERVENTION* ON APRIL 21, 2021 Interview of Hunter Tieken and Scott Crochet
ACCIDENT NO.:	DCA21FM012
PLACE:	Via Telephone
DATE:	May 21, 2021

was held according to the record, and that this is the original, complete, true and accurate transcript which has been transcribed to the best of my skill and ability.

[redacted]

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Transcriber