

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

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Investigation of: *

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UNION PACIFIC RAILROAD ROADWAY *

WORKER FATALITY IN VAIL, *

Accident No.: RRD21LR007

ARIZONA, ON JANUARY 31, 2021 *

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Interview of: GARRY ROBERTS, Roadway Maintenance Mechanic
Union Pacific Railroad

Via telephone

Friday,
February 5, 2021

APPEARANCES:

ROBERT "JOE" GORDON, Railroad Accident Investigator
National Transportation Safety Board

MICHAEL HOEPF, PhD, Human Performance Investigator
National Transportation Safety Board

JOHN MANUTES, Railroad Accident Investigator
National Transportation Safety Board

PATRICK SHARP, Signal and Train Control Inspector
Federal Railroad Administration

DREW BOKENKAMP, General Director for Track Programs
Union Pacific Railroad

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I N T E R V I E W

(1:20 p.m.)

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2
3 MR. GORDON: Okay. My name is Joe Gordon, and I'm a rail
4 accident investigator with the NTSB. This phone interview is
5 being conducted on February 5th at about 1:20 p.m. Eastern Time.
6 Today we are speaking with Garry Roberts who is a roadway
7 maintenance mechanic with the UP railroad.

8 This interview is in conjunction with NTSB's investigation of
9 the January 31st, 2021, accident where a roadway worker was
10 injured near Vail, Arizona. The NTSB accident reference number is
11 RRD21LR007. The purpose of this investigation is to increase
12 safety, not to assign fault, blame, or liability.

13 So, before we start with the interview, we'll go around and
14 introduce everyone. I'll call by organization and then ask that
15 you state your name, spell your last name, and tell us who you're
16 representing and what your title is.

17 Please speak clearly. You know, it -- especially with it
18 being a recording over the phone, if you'll just make sure that
19 you're close to the speaker on your phone and the mic and speak
20 clearly for the recording.

21 Again, my name is Joe Gordon. The spelling of my last name
22 is G-o-r-d-o-n, and I'm a railroad accident investigator with the
23 NTSB.

24 Go on to NTSB, Dr. Hoepf.

25 DR. HOEPF: Thank you, Joe. This is Mike Hoepf. Last name

1 is H-o-e-p-f. I'm a human performance and system safety
2 investigator with the NTSB.

3 JOHN MANUTES: Good morning or good afternoon. My name is
4 John Manutes, M-a-n-u-t-e-s. I'm a rail accident investigator
5 with the NTSB.

6 MR. GORDON: Okay, and FRA, Pat?

7 MR. SHARP: Hi, this is Patrick Sharp, signal and train
8 control inspector for the Federal Railroad Administration. Last
9 name is S-h-a-r-p, and I'm the IIC for this accident for the FRA.

10 MR. GORDON: Okay, thank you, Pat.

11 MR. BOKENKAMP: Good afternoon. Drew Bokenkamp,
12 B-o-k-e-n-k-a-m-p, and I'm the general director for track programs
13 for Union Pacific Railroad.

14 MR. GORDON: Okay, thank you.

15 And, Mr. Roberts, as we discussed before we started the call
16 here, we have your permission to record the discussion today?

17 MR. ROBERTS: Yes.

18 MR. GORDON: And you understand that this will be
19 transcribed. You'll have an opportunity to review that
20 transcription. It may become a part of a public docket, so
21 there's no guarantee of confidentiality.

22 MR. ROBERTS: Yes, I understand that.

23 MR. GORDON: Okay. Thank you, sir. And we discussed that
24 you could have a representative here today, and you're going to --
25 you're okay with Mr. Bokenkamp filling that role as well?

1 MR. ROBERTS: Yes, I'm fine.

2 MR. GORDON: Okay. Thank you, sir.

3 INTERVIEW OF MR. ROBERTS

4 BY MR. GORDON:

5 Q. So if you would just, you know, give us your name and
6 spelling like we did everyone else, and if you could just give us
7 a little bit of your background starting from your time that you
8 hired out with UP and the work that you've done to progression to
9 move you to the roadway maintenance mechanic position.

10 A. Okay. My name is Garry Brent Roberts, G-a-r-r-y, B-r-e-n-t,
11 R-o-b-e-r-t-s, and I have been working for the railroad, I think
12 I'm working on 24 years now. I hired on as a laborer and did
13 field truck for a little bit. I only did that for about three
14 years, and then I transferred over to mechanic. I was a mechanic
15 in the military, so, you know, I had the mechanical experience.
16 And I have worked on tie gangs, rail gangs, distribution gangs. I
17 think the only thing I haven't done is concrete. And I've been
18 doing it for about 20 years.

19 Q. Okay, thank you for that, and thank you for your service as
20 well. So, you know, I -- if you could give us just a little bit
21 of a rundown as far as the assignment that you're on now. Do you
22 have certain equipment doing on the -- on that 9062 gang that
23 you're assigned to? Or is it just you take care of whatever
24 assignment is given to you?

25 A. Yeah, we -- I just take care of whatever is given to me. I'm

1 not necessarily tie gang or cert (ph.) gang. I do both.

2 Q. Okay.

3 A. You know, at the time I was doing it, I was working on the
4 tie gang.

5 Q. Okay. And this -- so we'll just kind of focus on the piece
6 of equipment that was, you know, that is the -- one of the focal
7 points of the investigation, the TMT 1602. Could you tell us a
8 little bit about that piece of equipment as far as the maintenance
9 that you've conducted on it?

10 A. So I had been on the gang, like, a week and a half, and I had
11 been assigned to the undercutter gang before that and had recently
12 been over because they were in a better location. They were
13 working closer to my home. And the pup tamper, as we call it, had
14 had a failure on the rear travel motor, blew the front seal out
15 and was leaking hydraulic oil all over the place.

16 So we capped the lines, and it was towards the end of the
17 day, and they pulled it back into the hole. And we had a rebuilt
18 motor in the trailer, and that was brought out. I had a guy with
19 me, but he was just handing me tools, and I put the new motor on,
20 installed it. And we started it to make sure it would go forward
21 and backward, and that was it. It was kind of late. I worked
22 split shift, so I didn't come in until 10:00, so it was late. It
23 was after 10:00 when we got done with it. And that was about it.

24 Left and came back out the next day, and it had managed to
25 travel three quarters of a mile and the rebuild gave out, did the

1 same thing with a seal out on the end. We capped the motor, you
2 know, the hoses to the motor in the motor. Capped it, plugged it,
3 and removed the chain from it. And, of course, we didn't have
4 another one. They had to order one and was waiting for that to
5 come in. And that was pretty much it.

6 It ran all that day like that, and then it started to develop
7 the lines, and I don't know if it was from them hanging because
8 they weren't hooked to a motor anymore, but there was a couple
9 O-rings that started to leak. And then I was questioning whether,
10 you know, the system had too much pressure, so I checked the
11 propulsion side, just put a gauge on it, and it was actually very
12 slightly what they recommend, which was 2,700 pounds, and it was
13 about 2,660, 2,640 forward and reverse. So I went ahead and
14 changed the two O-rings, and it ran the rest of the day.

15 And then the next day, I -- you know, I had a big truck, so I
16 had to do a DOT rest day because I was going to be out of hours,
17 so I did my DOT rest day, and I guess that's when the incident
18 happened.

19 Q. Okay. Okay, so that was the -- I guess the first failure of
20 that drive motor was on the January the 29th?

21 A. Yeah, that sounds right. I mean, I don't have it in front of
22 me, but yeah.

23 Q. Okay. Yeah, the accident date was the 31st, so I guess that
24 the -- most importantly, when he -- when that equipment left the
25 site on the morning of the accident, the morning of the 31st, it

1 left the site on that -- with just the one propulsion motor.

2 A. Yes.

3 Q. Okay.

4 A. I mean, the day that the incident happened, it only had a
5 front drive motor.

6 Q. Okay.

7 A. And the other one had been disconnected and the chain
8 removed --

9 Q. And that --

10 A. -- from the motor.

11 Q. -- had happened the previous day, right?

12 A. Yeah. It was, you know, it wasn't the day of the incident.

13 Q. Okay.

14 A. It was before, a day or so before, yeah.

15 Q. Okay. All right. All right. So, as far as that piece of
16 equipment goes, anything else to your knowledge that was reported
17 has an issue on it? Anything, you know, anything on the daily
18 inspection report or any concerns?

19 A. They had -- there was a speedometer that had been acting up
20 or didn't work, the cable, and it had been written up. They had
21 wanted me to put a new cable on it, and I had to look at it -- I
22 can't remember how far back that was. It was a couple days, three
23 days. And the new speedometer that they had installed was not
24 compatible with the cable. They weren't even the same. And so I
25 had told them that they needed to, you know, get the right two to

1 get to work, and that's about as far as that went. There was
2 parts on order for that.

3 Q. Okay.

4 A. But that was the only other issue that I know the machine had
5 was, you know, a speedometer cable that did not work.

6 Q. Okay. So thinking about --

7 A. Or the speedometer I should say.

8 Q. Okay. And then, so thinking about this speedometer, are
9 we -- think you're -- would we be more analog gear-driven
10 speedometer. Nothing -- not like a digital -- nothing integrated
11 into the propulsion system?

12 A. No, it was a digital, because it had a DIN (ph.) cable that
13 ran up to it. But the speedometer, the actual gauge that they had
14 in the machine at the time, didn't have cable, even a place to
15 hook it up. But it was the wrong -- somebody had ordered the
16 wrong one or sent the wrong one.

17 Q. Okay.

18 A. They weren't compatible at all, so --

19 Q. Okay. And as far as the braking on the equipment, is that
20 anything that -- I know we've heard in previous interviews that
21 the operators take care of adjusting their brakes, checking their
22 brakes, looking at brake pins --

23 A. Yes.

24 Q. -- those type of thing. So is that anything -- I guess if it
25 was something that they couldn't maintain, would they -- would you

1 be involved in helping them with that?

2 A. Yeah, yeah. If they -- I mean, sometimes things are rusted
3 on or, you know, they don't quite have a wrench big enough for all
4 the system, but adjustment of brakes is -- that's an operator's
5 deal.

6 Q. Okay. Okay, and then --

7 A. But I have done it, and I've helped them, but I hadn't on
8 that machine brakes.

9 Q. Okay.

10 A. The -- we had no write-ups for the brakes, and I hadn't
11 helped them do anything with it, so --

12 Q. Okay. All right, thank you. Yeah.

13 MR. GORDON: Well, that's what I've got for the first round.
14 I'm going to pass it on to Mike Hoepf from NTSB.

15 MR. ROBERTS: Okay.

16 BY DR. HOEPF:

17 Q. Yeah, appreciate it. Yeah, let's just -- I mean, obviously
18 we're just talking about this tamper gear, so maybe we can just
19 kind of keep -- you know, learn a little bit more about that.

20 One thing that you guys did touch on, the speedometer on --
21 so was the speedometer working then, or was that non-functional at
22 the time because (indiscernible)?

23 A. No, it was non-functional time.

24 Q. All right. Okay, I got you. I got you. Then, I mean, is
25 that a big issue? I mean, to operate without a speedometer, is

1 that something that is kind of critical to the operation or is
2 that kind of a lower priority for this kind of work?

3 A. No, it's got pretty good priority because, I mean, it falls
4 under that machine is heavy enough that it has to have a
5 speedometer that works.

6 Q. Yeah.

7 A. I know that they had -- like I said, I'd only been on the
8 gang for like a week and a half, so I don't know when it actually
9 got started, but, I mean, there is a timeframe there where they
10 have -- if that's found to be faulty, then they have, you know, so
11 long to order parts. And there will be a work order open for it,
12 and it has to be repaired, at the very least, within 30 days.

13 Q. Okay, okay. So, I mean, is it that, you know, part of -- me,
14 I'm a psychologist. I'm not -- I don't know anything about
15 mechanics, but -- I mean, so is the -- would the operator of this
16 tamper just not know his speed? I mean, is that -- you know, is
17 there a way where he could gauge his speed without a speedometer?
18 Is that -- I mean, is it basically just work without knowing your
19 speed until you're able to repair that?

20 A. Yeah, I mean, he wouldn't. He'd just be guessing. You know,
21 if they were traveling in and out of the hole, and they'd be
22 traveling in a group, and he would have to maintain the travel
23 distance from the one in front of him, and the one behind him
24 would have to do the same. So, I mean, he wouldn't be speeding.

25 Q. Right.

1 A. He can't get ahead of the guy in front of him, you know?

2 Q. Right, right. Yes, yeah. It's not a race here, so --

3 A. Yeah.

4 Q. So, I mean, how fast would this tamper go? I mean, the
5 biggest -- you know, what would be a maximum speed of the thing
6 anyway?

7 A. Oh, I would imagine it could probably go 40, 50 mile an hour,
8 you know, because it's --

9 Q. Oh, wow.

10 A. -- track bound and -- yeah, they get up and go. But, you
11 know, it's a bigger machine.

12 Q. Wow. I'd say --

13 A. A lot of the little ones, it has a really had time doing 25,
14 you know?

15 Q. Yeah, yeah.

16 A. But if you're (indiscernible) --

17 Q. Yeah, I think --

18 A. -- the big ones, you know, they get up pretty fast.

19 Q. I didn't know that. That's interesting.

20 So we've been kind of asking different people and trying to
21 pick their brain about, you know, so you've got one of the motors
22 out. I mean, maybe you can kind of start off by -- I want to ask,
23 you know, what -- how that impacted the speed and things, but
24 maybe you can first just kind of start by telling me a little bit
25 about how this rear motor front loader works. I mean, why two

1 different motors? You know, why not just, I don't know, one big
2 motor? What's the story there?

3 A. So it's a tamper, so they go -- it's tamping ties, you know,
4 so it goes and stops and goes and stops, and generally when they
5 have two motors like that, they're running both motors in work
6 mode so that they can get the machine forward to the next tie, you
7 know, without a big, slow lag. And they're -- usually when
8 they're travelling down the track, like going back into the hole
9 or something like that, they generally put all of the fluid back
10 to one motor so they can put more fluid and have more speed. But
11 that only runs one axle.

12 Q. Okay, okay.

13 A. For the higher speed work mode is -- usually uses both
14 motors.

15 Q. Okay, so work mode would use both motors. And then again,
16 yeah, I have to apologize. I don't really understand the
17 mechanical aspect of this. So is the rear motor then, you know,
18 driving the rear axle and front motor is driving the front axle?
19 Or is it that --

20 A. Yes.

21 Q. Yes? Okay, okay. I got you.

22 A. And they're -- yeah. And they're chain-driven motors --

23 Q. Okay. And then --

24 A. -- fairly close to the axle.

25 Q. Okay. And then, again, I know there should be obvious

1 question, but again, so these are just like diesel motors?

2 A. I'm sorry. I didn't hear that.

3 Q. Oh, are these diesel?

4 A. No, these are hydraulic motors.

5 Q. Hydraulic motors, okay, okay. I got you, thank you. Thank
6 you. Okay. And then, I mean, again, just another kind of obvious
7 question here but -- so there's the axles, but there's also the
8 tamper. I mean, what would you describe as the functional part of
9 this tamper? I mean, is that -- what do you call kind of the, you
10 know, tamping levers and prongs and things like that? What is
11 that, you know, contraction called?

12 A. So it's, I mean, it's a tamper, so what it does is it takes
13 the rock, and you squeeze it, and it vibrates it up underneath the
14 ties to raise the ties to the rail. So they have -- it's a tie
15 gang, so they're working along, removing ties and pulling out the
16 old ones and putting in a new one. And it goes along and tamps
17 the ties that they have replaced, you know, with a new one that
18 they've replaced it with and tamps it up nice and tight so that it
19 can be spiked.

20 Q. Okay, okay. And so --

21 A. That's basically the function of it.

22 Q. Okay. And so the tamping equipment, that's on -- that's all
23 on the front of the machine?

24 A. Yes.

25 Q. As far as the --

1 A. Yeah, the work head. Yeah, the work heads are on the front.

2 Q. Okay. So the work heads, that's what you would call that
3 actual tamping piece?

4 A. Yep, the tamping heads. They're on the front of the machine.

5 Q. Okay, okay. And so, in terms of powering the tamping head,
6 is that -- can that be the rear motor, the front motor, both
7 motors?

8 A. Oh, it would be a -- they're -- they run hydraulically on
9 that machine, but they -- there's a diesel engine that powers
10 pumps, and the pumps deliver the fluid to various functions of it,
11 whether it be travel or the work head option functions.

12 Q. Okay.

13 A. And so there's a pump -- there's usually a work head pump and
14 a travel pump --

15 Q. Okay.

16 A. -- driven by a diesel engine that powers motors and various
17 cylinders. You know, the work heads have small vibrator motors
18 that go ahead, squeezes it, vibrates it, and packs it up tight
19 underneath the tie.

20 Q. Okay, okay. That's helpful for me, and I appreciate it.
21 This is just kind of, you know, education for me. So there's one
22 diesel motor that's powering the pumps to the two hydraulic
23 motors?

24 A. Um-hum, for pumps, yeah.

25 Q. For -- okay, pumps. Okay. Okay, thanks. And I can kind of

1 spend some time educating myself offline here. I don't want to
2 keep you all day describing the mechanic (indiscernible) here, but
3 what I'm trying to get at here is, okay, so we've got, you know,
4 rear motor is out and you're --

5 A. Yes.

6 Q. -- operating with one motor. So could -- can you describe
7 what implications that has for the operation of the piece of
8 equipment?

9 A. So he would be in the work mode. He was in work mode and --
10 at the time of the incident. From what I understood, it was in
11 the middle of the day, and they're out there working. And it
12 would actually make this machine slower. You know, it's only got
13 one motor to drive it at 50 percent capacity. It wouldn't lurch
14 forward as fast as it could --

15 Q. Okay.

16 A. -- you know, with only one motor.

17 Q. Um-hum. So, I mean, is that kind of like --

18 A. I mean, it's a heavy machine. I mean, it's like, I believe
19 it's around 40,000 pounds. It takes a bit to get it from a
20 standstill to the next tie, which is, I mean, you know, 18 inches
21 or whatever, but it still takes a bit of power to move it that
22 quickly to the next spot.

23 Q. Yeah, yeah.

24 A. But it would've been lessened with only one motor.

25 Q. Okay, okay. I got you. All right, so there's the tamper

1 heads and there's the -- you know, just the movement, right, back
2 and forth of this piece of machinery. So, when we're talking
3 about that 40, 50 miles an hour, I mean, would it have that if you
4 were traveling with one motor? Would you say the top speed would
5 be? You know, 20, 25 miles an hour, or would that not be an issue
6 traveling?

7 A. I don't think it would travel as fast, but generally, when
8 they go from work to travel mode, it picks a motor -- or not -- it
9 picks a -- it doesn't run both axles in travel mode, so it puts --

10 Q. Yeah.

11 A. -- more fluid to one motor, basically.

12 Q. Okay.

13 A. You know, so it -- you know, I'm not quite sure what you're
14 asking here.

15 Q. Well, I guess what I'm trying to say is, let's just say you
16 weren't working, right, and you were just traveling down the rail.
17 You were just going to where you're going to be working. So,
18 normally, would that just be -- you know, the hydraulic fluid
19 would be -- and pardon me if I'm butchering this, but would the
20 hydraulic fluid be going to the rear motor then, which would just
21 -- pushing the rear axle and effectively would be chugging along
22 like a rear wheel drive machine? But in this situation, it would
23 be going along like a front wheel drive kind of situation? Is
24 that -- you know, I mean, how would that -- does that make sense?
25 I'm just trying to understand, you know --

1 A. Yeah.

2 Q. -- how would the dynamics change or would they change, you
3 know, in terms of traveling?

4 A. No. I mean, it would change. It would change the way it
5 would travel. I mean, obviously, it's meant to function with two.
6 There are some systems -- I've seen some systems where they divert
7 all the fluid to one axle for travel, and it's four wheel drive
8 for work. Some systems just, you know, they have a great big
9 motor or a pump on it, and they can deliver enough fluid that they
10 would just put more fluid in travel, you know, that it's basically
11 lower geared or -- I would just say it has more torque in work and
12 more high speed in travel.

13 Q. Okay, okay. I got you. All right. And then, my follow-up
14 to that, of course, is just, in terms of the tamper heads, would
15 you expect different power in terms of the tamping ability? I
16 mean, would that slow down the process for --

17 A. I --

18 Q. -- tie to tamp or would it -- I don't know.

19 A. No. It wouldn't change. It wouldn't change the way the work
20 heads function at all. Again, it's a whole separate pump, and it
21 runs the work heads compared to the travel. It just wouldn't move
22 as quick from hole to hole.

23 Q. Oh, okay.

24 A. Because it --

25 Q. It would --- so you wouldn't expect the rear motor being out

1 having any impact on the functionality of the tamper head.

2 A. No, the rest of the machine would work just like normal.

3 Q. Okay, okay. I got you. And then, so how about the braking
4 system? Would it have any impact on the braking systems?

5 A. No, the brakes are air, so they're not --

6 Q. Okay. Okay, and can you talk a little bit more about the
7 brakes just in terms of how the -- what are the different braking
8 systems on this piece of equipment and how they work and how
9 they're operated and all that?

10 A. It's basically not a whole lot different from a semi. You
11 know, my own work truck's got air brakes on it. Its air
12 compressor on the system supplies the air, stores it in a tank,
13 and then, you know, it uses it. They're what they call fail safe
14 brakes, so they use air to apply in service, to apply the brakes.
15 But if the system ever runs low on air, the park brake is set with
16 mechanical springs in the brake cams. So it uses air to hold the
17 springs back. So, if you lose air, it applies the brakes.

18 Q. Okay. That's --

19 A. So you --

20 Q. Yeah, so and then -- that's really helpful. Thank you.

21 Then, just in terms of, you know, let's say you're sitting in the
22 cab, driving this -- operating this tamper. What would be -- how
23 would you most likely engage those brakes? What's the -- what
24 would be the normal braking function, and then what would you do
25 to brake in an emergency? How would those -- you know, would that

1 be the same, or would there be a different way to engage the
2 braking system?

3 A. And, again, we'd have a -- basically, he has a pedal that has
4 forward and reverse and then a brake pedal. And he just has to
5 push on it with your foot brake pedal, that would apply air to the
6 service side and apply the brakes.

7 Q. Okay, so there's the --

8 A. If something -- if, for some reason, that doesn't work, you
9 could pull the park brake, and it would also set the brakes.

10 Q. Okay, okay. So there's the -- there's a foot pedal. Would
11 you say the foot pedal --

12 A. Yeah.

13 Q. -- the foot brake pedal would be the most -- that would
14 probably be what you would use to stop the vehicle in most
15 situations?

16 A. In most situations, yes.

17 Q. Okay. So how about the joystick control on this vehicle, how
18 does that work?

19 A. So it's an electric joystick, and it runs -- it controls
20 hydraulic valves that, you know, tell it to go forward or reverse.
21 So if you move the joystick -- and I'm not sure which direction is
22 which on it, you know, if it's side to side or forward or reverse
23 for travel. I mean, forward and reverse would make sense, but
24 that isn't -- I'm not sure how it is on that particular machine; I
25 don't operate it. But it has a joystick, and it would use

1 electricity to activate a coil on a hydraulic valve that would --
2 you know, the coil and make it go forward or reverse.

3 Q. Okay, okay. So it sounds like -- you know, and if you're not
4 familiar with any of the -- kind of like the operational aspects
5 of it, you know, not asking you to speculate or anything like
6 that. But I guess, from the discussions we've had recently here
7 in the past couple days, my understanding has been that, in order
8 to continue to move forward, you have to continually hold the
9 joystick forward. Is that consistent with your understanding of
10 how this works?

11 A. Yeah, yeah. Under normal operation, I mean, whether it be a
12 foot pedal, a joystick, or anything, you would push it in the
13 desired direction, and when you released it, takes it -- takes
14 away the drive of -- you know.

15 Q. Okay, okay.

16 A. It no longer pushes it in that direction.

17 Q. Okay. So, and would that be the case even if you were
18 traveling like a longer distance? Like let's say you were going
19 to be traveling for an hour to get to a (indiscernible) or
20 something. So you would have to literally have your hand on the
21 joystick pushing it forward the entire time, right? You can't
22 just push the joystick forward and then it wants to stay in that
23 forward position and keep moving while you eat a sandwich or
24 something, right?

25 A. No. Under normal conditions, you push it forward. You let

1 off of it, it takes the power away.

2 Q. Okay, okay. Are you aware of -- is there a mode or is there
3 any kind of alternative way where a machine would continue to move
4 when you don't have your hand on the joystick?

5 A. I don't -- I cannot recall a machine out there that's that
6 way, no. They all kind of -- I guess you could call it like
7 springy center return, you know, you push forward to travel
8 forward or whatever, and then when you let off, it goes back to
9 neutral.

10 Q. Yeah, yeah. Would you describe that as like a dead man kind
11 of system, like a dead man brake for like an absence of an
12 operator input, it just keep (indiscernible) to stopping the
13 vehicle? Is that the best --

14 A. Well, it's -- if there's -- there's lots of different -- some
15 machines have that. Some have a service dead man option. I don't
16 know if that one did. I know some Nordcos do. And, of course, it
17 would depend on which -- you know, the operator selects that.

18 Q. Yeah.

19 A. But he can put it in service. Like on a -- I know on a
20 spiker, if you put it in service, it's got a dead man that, when
21 you push the travel pedal, it goes forward. If you let off, it
22 would coast --

23 Q. Oh, okay.

24 A. -- on it. With dead man -- in dead man, it's not that way.
25 If you push the travel pedal forward to move the machine, let's

1 say forward or reverse, whichever, and you --

2 Q. Yeah.

3 A. -- release it, it would apply brakes.

4 Q. Okay. So this tamper, you wouldn't expect it to coast?

5 A. I'm not actually sure. I haven't ran one, and I don't know
6 if it has that feature or not.

7 Q. Okay. And then that's great. I don't want you to speculate
8 or anything, yeah. We're just trying to get better --

9 A. Yeah.

10 Q. -- meaning here.

11 A. Yeah, that's outside of my scope. I mean, I've worked on
12 ones that have both, but I -- that particular machine, I'm not
13 familiar enough with it to know whether it has that or not.

14 Q. Yeah, okay. That's no problem. That's okay.

15 So just from, I mean -- and this is about the end of
16 questions here, but can you think of -- just kind of based on your
17 understanding of this machinery, can you think of a way, a failure
18 mode where you would take your hand off the joystick, and this
19 tamper would not stop?

20 And is there some kind of -- can you think of like something
21 that would cause it to -- I guess, an electrical input? I mean,
22 could there be some kind of electrical failure where it was
23 misreading the position that joystick? I mean, can you think
24 of -- have you ever encountered or heard of a situation or had to
25 do a repair on a situation where somebody's reported that this --

1 that the vehicle was continuing to move forward in the absence of
2 a direct input to do so?

3 A. Yes. I had worked on machines that have had that issue, yes.

4 Q. Can you tell us about that?

5 A. So it's electric over hydraulic. So you have a spool and a
6 valve, basically, and you're using electricity, you're using
7 magnets to pull it one way or pull it another way. And it -- the
8 valve sits there in neutral, and fluid that's supplied to it just
9 goes back in tank until it's required. And then, when it's
10 required, either by manually moving the spool or by electrically
11 moving a spool, you shuttle the spool over, and it lets fluid go
12 to the direction you want to go, whether -- and whether you're
13 moving a cylinder or turning on a motor, that's how that works.

14 In a hydraulic system, you can get things in the system --
15 contaminants in the system that would cause a valve to stick.
16 I've had many valves stick in my career.

17 Q. Interesting, interesting. So would you say that's a common
18 problem, an uncommon problem?

19 A. No, it's an uncommon problem, but, I mean, it does happen.

20 Q. Yeah. I -- that --

21 A. I've seen it.

22 Q. Is that something more common with older vehicles, newer
23 vehicles?

24 A. No, either.

25 Q. Oh, either? Okay.

1 A. Yeah, there's a lot of moving parts in a hydraulic system.
2 You know, the pumps themselves have moving parts. The cylinders
3 have moving parts that -- you know, throughout the whole system,
4 there's things rubbing against each other, and you can get
5 particles, flakes, rubber O-rings. I mean, things that can get
6 stuck in spools --

7 Q. Interesting.

8 A -- and cause them to either not move or, you know, move and
9 get stuck. And actually, you know, I've had things like move and
10 get stuck, and then I have to force them back the other way with a
11 punch, or sometimes you can just go the other way, and it will
12 free itself, and then it'll work fine for a very long time, if not
13 ever. I mean --

14 Q. Yeah.

15 A. -- it's kind of the nature of a hydraulic system. If it has
16 contaminants in it, it can -- you can stick a valve or you can
17 damage it. And that's why they put filters in the system is to
18 catch things like that.

19 Q. Interesting, interesting. So you could -- it sounds like you
20 can kind of have a transient sort of problem that, you know, maybe
21 happens but it may be difficult to reproduce consistently?

22 A. Yes. Yeah, you could have a hydraulic cylinder fail in a
23 system and lose an O-ring and put stuff out in the system. And if
24 it happened to -- you know, it's going to go back in the tank, and
25 for some reason the tank filter didn't catch it, it could possibly

1 get stuck in a valve or stuck in a flow control or stuck in a
2 check valve. I've had things stuck in check valves.

3 Q. Um-hum. Interesting, interesting. So, I mean, would you
4 expect that rear motor out to have any impact on how fluid is
5 moving throughout the system? Or otherwise, I mean, is that -- do
6 you think that would have, I don't know, caused any of those sorts
7 of problems being more likely to occur or --

8 A. It could, yeah. Any failure in the system could cause that
9 to happen, yes.

10 Q. Yeah, okay.

11 DR. HOEPF: Well, thank you so much. That's all my questions
12 for now. I'll pass it to -- pass it off. Thank you, appreciate
13 it.

14 MR. ROBERTS: All right.

15 MR. GORDON: Thanks, Mike.

16 And we'll go next to you, John.

17 MR. MANUTES: So just --

18 MR. GORDON: Oh, yep, John?

19 MR. MANUTES: No, I was going to say, do you want to offer a
20 quick break? I think I've been on the phone for hours. Does
21 anybody need a bio-break or anything?

22 MR. GORDON: Yeah, that's fine.

23 MR. MANUTES: I'm good. Just do you want to offer?

24 MR. GORDON: Yeah, yeah.

25 Garry, would you like a break, or do you want to keep on

1 pressing on?

2 MR. ROBERTS: No, I can press on. I'm fine.

3 MR. GORDON: Okay. Anyone else?

4 I really appreciate the -- you know, that discussion on the
5 hydraulic system. That's very helpful.

6 So yeah, if you're good, John, you can go on if you have --

7 MR. MANUTES: Okay.

8 MR. GORDON: -- any questions there.

9 BY MR. MANUTES:

10 Q. Yeah, just a quick follow-up, I think, to make sure that I
11 understand something. Garry, thanks for your help today. This is
12 John Manutes with NTSB. Can you help me drive down how the
13 pneumatic brake system works from the beginning? There's a --
14 there's, what, a John Deere engine, and that's running an air
15 compressor and that's filling an air reservoir. Is that right so
16 far?

17 A. Yes.

18 Q. And then --

19 A. There will be a power plant driving a compressor, and the
20 compressor would have storage tanks for air, and then that's what
21 the system runs off of is that stored air in the tank.

22 Q. Okay. And the air is keeping the brakes released with the
23 spring applied back up?

24 A. Yeah, yeah.

25 Q. Okay.

1 A. There is a mechanical spring that applies the brakes, and
2 once the system builds usually a little over 60 pounds, if you
3 release the parking brake, it will apply air to the springs and
4 release the brakes.

5 Q. Okay. And this is --

6 A. And then to apply brakes after that is a manual -- you know,
7 you push the brake pedal, or some have a handle to apply air to
8 the service side to apply brakes to the wheels.

9 Q. Right, okay. Please tell me if this is out of your area of
10 expertise. When they get to the work site and they're working
11 from tie to tie, I believe that's in the work mode and sometimes
12 called indexing, do you know if they're working the pneumatic
13 brakes at that point, or do they use friction and hydraulic and
14 gravity to just approach and stop without using the pneumatic
15 brakes? Do you know?

16 A. On that particular system, I do not know. Indexing on like a
17 Jackson tamper is done with air.

18 Q. Okay.

19 A. And it applies the brakes.

20 Q. Which is much bigger, right?

21 A. Yeah, it's a bigger machine.

22 Q. Yes, okay. So we're not -- and that's fine.

23 MR. MANUTES: No, I don't have any other questions. Thank
24 you for clarifying that.

25 MR. ROBERTS: All right.

1 MR. GORDON: All right, thank you, John.

2 And we'll move on to Pat, FRA.

3 MR. SHARP: Yeah, I really don't -- I think he's done a great
4 job explaining this system to us so far, and I haven't come up
5 with anything I could ask him right now.

6 MR. GORDON: Okay, thank you, Pat.

7 How about Drew, you got anything?

8 BY MR. BOKENKAMP:

9 Q. Just a couple real quick ones here. So, Garry, I know you
10 said you had been on that gang it sounds like a couple halves.

11 A. Right.

12 Q. Had any of the operators that were running that told you that
13 they had any other issues outside of the speedometer or outside of
14 the travel motor?

15 A. No. I mean, the speedometer I had got from a -- we get a
16 regular paper that says, you know, we have write-ups that we --
17 things to do, and that was on the list. And then, when we went to
18 do it, like I say, the parts didn't match up, so it was, you know,
19 tell the parts guy, hey, we need the proper stuff, and we'll
20 handle it. But I -- and I was the one that actually answered the
21 call when the motor failed both times.

22 So when the initial motor failed and we went out there,
23 capped and plugged, and then it got into the hole that night, and
24 I worked the second shift, basically, so I put the motor on. And
25 then when the -- unfortunately, the new one didn't -- you know,

1 the rebuild didn't last very long, and which kind of sucks after
2 spending all that time putting it on to have it go like three
3 quarters of a mile and do it again. But, you know, it is what it
4 is.

5 Q. All right. And then just, I mean, from -- you've been doing
6 this a long time, right? You said 24 years.

7 A. Yeah.

8 Q. Just from an equipment --

9 A. I've been --

10 Q. Just from an equipment standpoint, I mean, when you hear you
11 -- okay, you have one less travel motor, in my mind, because I'm
12 not a mechanic, okay, it sounds like, wow, that's a big deal.

13 Just is it uncommon to do that?

14 A. Uncommon to lose a travel motor you mean?

15 Q. Well, to run or, I guess, is it common that we would run a
16 piece of equipment with just one travel motor? I mean, if we have
17 to get through the day or through whatever, is that --

18 A. No, that's a common practice. I mean, it happens. You lose
19 a motor, and you cap and plug it, remove the chain, and they work
20 until you can get it in where you can put another motor on it.

21 Q. Okay.

22 A. It's common.

23 Q. Then I guess just my last question, so back to where you were
24 talking about on a valve, if those stick, typically, would you
25 still be able to operate that afterwards or not? Like, let's just

1 say, if a valve sticks on a machine, is it something where it's
2 kind of plugged until we do something with it? Or is it --

3 A. No, it can --

4 Q. -- I mean, how --

5 A. It can act -- unfortunately, it can act in different ways.
6 I've had valves stuck and could not get them unstuck and had to
7 replace them. I have had valves that would stick and then, you
8 know, you went the other direction, and they would let go. Or I
9 had literally like taken a punch and driven the spool over and got
10 it to clear the piece, the spool on the inside. You know, when it
11 slides in, it's pretty hard, and what's -- sometimes what's stuck
12 is a piece of rubber O-ring. But, you know, something -- or
13 brass, something small. And then the tolerances are pretty tight,
14 and if they get stuck, if you get it clear, don't run them forever
15 like that.

16 Q. So what if --

17 A. If it clears. If it's not stuck, it's not stuck, you know?

18 Q. That's fair. Would it typically, I guess -- would we have to
19 do something to get it unstuck?

20 A. No. I've seen them stick and then let go, and that would be
21 it.

22 Q. Okay. Okay. That's --

23 A. And it might not ever reproduce that again.

24 Q. Okay.

25 MR. BOKENKAMP: That's all I got.

1 BY MR. GORDON:

2 Q. Okay. Yeah, and so kind of staying along that same lines of
3 the sticking valves is, like you talked about earlier, you can
4 have a contaminant in the system. Sometimes, it's not something
5 that's foreign to the system, like a piece of O-ring. The O-ring
6 was designed to be a part of that system, but then it's out of
7 place and becomes lodged somewhere. And like you said, if it then
8 clears and makes its way back into the tank or gets caught in a
9 filter, then it can be an intermittent problem that doesn't
10 reproduce itself. Is that factual there, Garry?

11 A. Oh, yeah.

12 Q. Okay.

13 A. Yeah. I mean, anything in the system puts the possibility of
14 a contaminant, and hydraulic systems are very sensitive to that.
15 Changing a motor, a new cylinder, I mean, you know, things are
16 usually capped and plugged and, I mean, you can put a new motor
17 on, and it might have a piece of dirt in it from when they rebuilt
18 it.

19 Q. Right.

20 A. And you would put it on, and now you've entered that into the
21 system. And that's what the filters are for. You know, PM
22 services, that's what the purpose of those are is to keep nice,
23 clean filters, new filters in there that are not damaged that
24 would gather that out of the system.

25 Q. Yeah, yep. That's good information. So I want to circle

1 back to talk a little bit more about the speedometer. You
2 mentioned that the weight of the equipment -- so just looking at
3 the 214 regulations, required safety equipment on -- this would be
4 considered a new machine from the manufacturer date. So we're
5 looking at 214, I believe 507(c), which says that they have to
6 have a speed indicator on any machine that weighs over 32,500
7 pounds.

8 A. Yes.

9 Q. Okay. So that speedometer, that's something that you change
10 the part if you have it. If you -- will you just kind of let us
11 know a little bit, as far as your take, if you're told that that
12 speedometer isn't functioning, what are the -- what's your course
13 of action there?

14 A. Well, like I said, that's an FRA -- what we call an FRA
15 write-up. So if you have -- that's supposed to have a functioning
16 speedometer in it. So, if it did not function, you would pretty
17 much immediately open up a work order on it, and you would -- that
18 information should be given to the operator so that he can put it
19 in his logbook that this is the work order number.

20 And then there's a timeframe that ticks off, and if they're
21 ordering parts for it, then they have -- you know, sometimes parts
22 are -- especially some of the machines aren't even from in the
23 United States so that there's a lag time in getting parts. But
24 they have 30 days to get the parts and get it put on, and after 30
25 days, if that hasn't been satisfied, then, you know, it's out of

1 service.

2 Q. Okay. Okay. Yeah, and then I know there are records kept on
3 all those things, so we could take a look at that. As far as --
4 and I guess jumping back to the hydraulic filters, when you --
5 that hydraulic filter, am I thinking about that almost like an oil
6 filter? It's a metal or aluminum cartridge, and it has -- or a
7 metal or aluminum casing, and it has like a paper filter cartridge
8 inside?

9 A. Yeah. There are little -- I mean, there's a little more
10 pressure involved in that hydraulic system. In a lot of them, the
11 filters are actually internal in a metal tube, and they'll have
12 some kind of medium that would filter it, and then it's wrapped
13 with like screen.

14 Q. Okay.

15 A. So that doesn't come apart, because there's significant
16 pressure and flow.

17 Q. Okay, and are those like a reusable filter that you could
18 pull and clean and replace? Are most of those just a complete
19 throwaway and use and then put a new filter on?

20 A. Yeah, you just replace it.

21 Q. Okay.

22 A. You wouldn't try to clean it. Some of them will have a
23 suction screen, and that's just a metal screen, and you could
24 clean that. But most of the system pressure -- the pressure
25 filters in the system, they're you pull them out, you change them,

1 you put a new one in.

2 Q. Okay. And would it be fairly easy to identify the filters
3 that were, I guess, upstream from the valves or gates that might
4 cause an uncontrolled movement on that equipment?

5 A. Yes.

6 Q. Okay. That --

7 A. Yeah, you could go in there and find it, yeah,

8 Q. Okay. All right, thank you. That's very helpful.

9 MR. GORDON: That's all that I have right now. I'm going to
10 -- we'll go around for another round if you're good to keep
11 pushing forward there, Garry.

12 MR. ROBERTS: Yep, I'm fine.

13 MR. GORDON: All right, thank you.

14 Mike, you have anything?

15 DR. HOEPF: Yeah, thanks. Thanks, Joe.

16 BY DR. HOEPF:

17 Q. And, Garry, appreciate your time today. I don't have any
18 more questions about really this tamper specifically. I just kind
19 of had some standard human performance, system safety questions to
20 ask.

21 So, for you and your performance, did you have any issues
22 that hindered your ability to do your job? You know, for example,
23 any prescription medications or anything like that, that make your
24 work challenging? Sleep, you know, do you feel well-rested? Do
25 you have enough of a break between your shifts? Could you comment

1 on any of that?

2 A. No, I don't take any medications that would inhibit my
3 performance at work. I don't -- I have plenty of sleep. Don't
4 have any issues there.

5 Q. Okay. And just, how about your organization? Do you feel
6 like you're adequately supported? Do you have enough time to do
7 your work, to perform the repairs that you need to repair? Or do
8 you feel time pressure to get things done?

9 A. No, I don't feel over-pressured. I mean, there's always a
10 lot of things to do, but there's no one putting any undue pressure
11 on me to hurry.

12 Q. Okay. All right. And just in terms of -- I have to do one
13 more question about this tamper. You know, was it -- do you feel
14 like this tamper was safe to operate, or do you feel like it would
15 have been better to not operate it, given the conditions it was
16 in?

17 A. No, it can operate fine on one motor. Like I say, it
18 wouldn't be the first time a machine out there had ran on one
19 motor.

20 Q. Okay. All right. And then just a final question. Is there
21 anything else that you would like to add? Is there any
22 suggestions you have to us for things that you think we should
23 take a look at? Anything we should have talked about today that
24 we didn't talk about?

25 A. No, I can't think of anything.

1 Q. Okay. Well, thank you so much, Garry. I really appreciate
2 it.

3 DR. HOEPF: I'll pass it off. Thanks.

4 MR. GORDON: All right, thanks. Thanks, Mike.

5 John, you got anything?

6 BY MR. MANUTES:

7 Q. Yeah, a couple of quick ones. I think just mostly
8 for-the-record stuff to make sure we close all of our loops. The
9 speedometer -- I understand the speedometer was completely
10 inoperative. Does the speedometer attach to any other system?
11 For example, like an indexing system, (indiscernible) measuring
12 system, anything like that? Or is it -- this is a closed loop to
13 display the speed to the operator and that's it?

14 A. It can -- the DIN cable runs to a sensor that goes right to
15 the front motor. And the DIN cable --

16 Q. That's --

17 A. -- sends input back to the gauge.

18 Q. Right. So it's receiving RPM data probably from the motor.

19 A. Yeah. That would be --

20 Q. But it's not sending anything back to the motor?

21 A. No, it wouldn't send any motor -- it wouldn't send data back
22 for the motor.

23 Q. Right.

24 A. It would just send data from the sensor back to the gauge.

25 Q. Right, yeah, okay. Yes, yeah. Okay, I'm with you now. Yes,

1 exactly. Okay. And so the -- yeah, and thank you for that.
2 Thank you for bearing with me for that one. Is the hydraulic
3 reservoir shared between -- I guess it's two motors, or are
4 there --

5 A. Yes.

6 Q. -- separate reservoirs? It is shared. There's one
7 hydraulic --

8 A. Yes.

9 Q. -- reservoir that provides fluid to everything?

10 A. Yep. There's one reservoir.

11 Q. Okay.

12 A. And I can't think of a machine that isn't that way.

13 Q. Yes, okay.

14 A. They have one large reservoir, and then multiple pumps draw
15 from it, and everything returns to that tank.

16 Q. Okay. And then last one is a little bit more general.
17 Repair (indiscernible) those things you don't like spending time
18 doing the same job more than once. So based on your many years of
19 experience and expertise with these systems, what's your opinion
20 on why the travel motor failed -- the new or rebuilt travel motor
21 failed? It seems unlikely to me that you are excited about
22 putting in a third motor that might not last very long.

23 A. I have -- in my experience, I have not had good luck with
24 rebuilt components.

25 Q. Okay.

1 A. So, I mean, it is a lot more expensive. I -- off the top of
2 my head, I think a new travel motor for that thing is 13 grand.

3 Q. Okay.

4 A. And I think the rebuild was 3,000 or 4,000.

5 Q. Okay.

6 A. And I -- but, you know, if it doesn't -- I think it lasted
7 three quarters of a mile, so you get what you paid for.

8 Q. Understood. Thank you for that candid answer. I appreciate
9 it.

10 MR. MANUTES: I don't have any other questions.

11 MR. GORDON: All right. Thanks, John.

12 How about Pat? Anything from FRA?

13 BY MR. SHARP:

14 Q. Yes. Pat Sharp, FRA. Garry, when you're looking at a motor
15 replacement like what you had to do to this machine a few days
16 prior to the incident, is it normal procedure when you do
17 something like that, do you need to replace your hydraulic filters
18 or is that an as-needed type situation?

19 Is there a -- you know, you find that you pick things when
20 you do a motor replacement and then you -- will you put a new
21 filter on? Or is that -- I guess I'm looking at the maintenance
22 side of that hydraulic filters, those filters. And is that a
23 replace when you do a motor change out like that, or is that just
24 an as-needed type of product?

25 A. It's as-needed. I mean, the filters are there to catch

1 contaminants. That's what they're for. If you had lost a pump, I
2 would replace filters, but generally, items like motors and
3 cylinders, I mean, if the motor had locked up and, when I had
4 taken it off, you could see obvious pieces in the lines, then you
5 would do a filter change. But normally, no.

6 Q. Okay.

7 A. This one failed due to wear, in my opinion. Generally what
8 happens when they blow the seal out of the end is the tolerances
9 inside get loose, and instead of the pressure going out to the
10 system, some of that pressure goes back into the case. And that's
11 what causes the end seal to fail. It puts undue case pressure,
12 and then you lose the seal.

13 Q. Okay.

14 A. It wasn't --

15 Q. Yeah, I was just --

16 A. It wasn't a locked up or broken motor. It was just worn.

17 Q. Okay. Yeah, that was --

18 A. It was just (indiscernible) motor on it.

19 Q That's just kind of where I was going with it, if there -- is
20 there a normal procedure and what you're normally facing when you
21 have to do a motor changeout, that type of stuff with a hydraulic
22 system. Now, if you were to lose a hose or a lot -- a hydraulic
23 line, basically the same thing would apply. You'd just replace it
24 if you felt like everything was still fine?

25 A. Yeah.

1 Q. But you wouldn't replace the filter, right?

2 A. Yeah, you -- yeah, you wouldn't replace the filter. You'd
3 replace the line. And, I mean, when you build a new hose, you're
4 supposed to purge them, and you're supposed to clean them.

5 Q. Okay.

6 A. You know, and that's the reason they don't like hoses out
7 hanging them, you know, hose trees with tape over the end. They
8 should be capped and plugged and then --

9 Q. Right.

10 A. -- cleaned before installing them. You know, you should wash
11 them out and then install it.

12 Q. Okay. Good information, thanks.

13 MR. SHARP: That was my main question was just about the
14 filters. Thanks, Garry.

15 MR. ROBERTS: Okay.

16 MR. GORDON: All right. Thanks, Pat.

17 Yeah, Garry, and I'm in agreement with you on remanufactured
18 parts. Even for an automobile, I try to stay clear of them when I
19 can. It's just too many times taking one part off and putting
20 another part on. Yeah, so --

21 MR. ROBERTS: Yeah.

22 MR. GORDON: -- I think that's all that I have. I really
23 appreciate your time and the detailed look at that equipment and
24 how it works. And, you know, that's one reason that we scheduled
25 this interview was everybody understands you can't beat a man at

1 his own game. And you've been working on these things long enough
2 that you're -- you know, you got a really extensive knowledge of
3 it, and we appreciate your willingness to share that with us.

4 Do you have any questions for us before we go off the record
5 there?

6 MR. ROBERTS: No.

7 MR. GORDON: Okay.

8 And, Drew, I'm sorry. I may have skipped over you. Did you
9 have any clarifying questions at the end there?

10 MR. BOKENKAMP: No, I don't.

11 I really appreciate you getting on here though, Garry.

12 MR. ROBERTS: Yep, no problem.

13 MR GORDON: All right, thanks. I'm going to stop this
14 recording.

15 (Whereupon, the interview was concluded.)

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CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF: UNION PACIFIC RAILWAY ROADWAY
 WORKER FATALITY IN VAIL,
 ARIZONA, ON JANUARY 31, 2021
 Interview of Garry Roberts

ACCIDENT NO.: RRD21LR007

PLACE: Via telephone

DATE: February 5, 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.



Teresa Holevas
Transcriber