I, Marck G Michael, have read the foregoing pages of a copy of my testimony given during an interview relating to the accident that occurred on February 4, 2018, in Cayce, South Carolina and these pages constitute a true and accurate transcription of same with the exception of the following amendments, additions, deletions or corrections:

PAGE NO:	LINE NO:	CHANGE AND REASON FOR CHANGE
The only issue is the spelling of my name: Marck. I just wanted to make sure it got corrected if it was necessary.		

I declare that I have read my statements and that it is true and correct subject to any changes in the form or substance entered here.

Date: 3/21/2018 Witness: [redacted]

F-240-752-6344

UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

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Investigation of: *
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COLLISION OF AMTRAK TRAIN #91 AND *
A STATIONARY CSX TRANSPORTATION *
TRAIN NEAR CAYCE, SOUTH CAROLINA * Accident No.: RRD18MR003
FEBRUARY 4, 2018 *
*
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Interview of: MARK MICHAEL
CSXT Service Test Engineer Signals

[redacted]

Wednesday,
February 7, 2018

[redacted]

APPEARANCES:

RICKY PAGE, Rail Accident Investigator
Signal Group
National Transportation Safety Board

TOMAS TORRES, Rail Accident Investigator
Operations Group
National Transportation Safety Board

RICK LINDSTROM, Signal Inspector
Federal Railroad Administration (FRA)

I N D E X

[redacted]

I N T E R V I E W

MR. PAGE: My name is Ricky Page. I am the NTSB Signal Group investigator for this accident.

We are here today on February 7, 2018, at 103 Trade Zone Drive in Columbia, South Carolina, to conduct an interview with Mark Michael, who works for CSX. This interview is in conjunction with NTSB's investigation where Amtrak P91-03 collided with CSX F777 at milepost S367. The NTSB accident reference number is RRD18MR003.

Before we begin our interview and questions, let's go around the table and introduce ourselves. Please spell your last name, who you are representing, and your title. I would like to remind everybody to speak clearly so we can get an accurate recording. I'll start off, and then pass off to my right.

Again, my name is Ricky Page. The spelling of my last name is P-a-g-e. I am the NTSB investigator for this accident for the Signal Group. Okay. Thank you.

MR. TORRES: Tomas Torres, T-o-m-a-s, T-o-r-r-e-s, NTSB, operations investigator.

MR. MICHAEL: Mark Michael; last name is spelled M-i-c-h-a-e-l. CSX employee.

MR. LINDSTROM: Rick Lindstrom, L-i-n-d-s-t-r-o-m. I'm a FRA signal inspector for this region in this state.

INTERVIEW OF MARK MICHAEL

BY MR. PAGE:

Q. Okay. Mark, just in your own words, tell me about your career -- how many years' service; what is it you do for CSX, and then I want you to tell me in your own words what occurred on the day of the accident.

A. So I started with CSX in July of 1997. Since then I have served as an assistant signalman, signalman, signal maintainer, lead signal maintainer, foreman. I went, in 2010, to become a signal manager in South Carolina also with CSX, and I am now serving as a service test engineer since -- this would be of May 2013. So it's been almost 5 years I've been in this job. That would be 20 years of service total.

The day of the accident, the day prior, we were having a signal suspension. We had signals suspended from the S362.5 down to the south end of Woodford, 38501. That ran from 0723 up till 1900, when the signalmen went hours of service. I stayed around until approximately 1950, when I went in as well.

Q. Okay. Thank you, Mark. What time did the signal suspension go into effect?

A. It went into effect at 0723, and that would have been on the 3rd. That would have been Saturday morning.

Q. On February 3rd?

A. That is correct.

Q. And what time did the signal suspension end?

A. The signal suspension stayed in until we released it yesterday. We had the -- the signalmen who were working on the

project went hours of service at 1900. So although the signal suspension didn't actually end, we turned people back to their hotel at 1900.

Q. Okay. But you said the signal suspension didn't actually end till yesterday?

A. That is correct.

Q. Could you elaborate upon that?

A. Yes. We still had routes to be called on the north end of the signal suspension, and we also had to see the electric lock indications back to each control point on each side of where the incident happened on the 4th.

Q. So on February 3rd, about 1900 hours, you guys went home; is that correct?

A. That is correct. We sent the signalmen in because they were hours of service. Sent them back to their hotels; they all stay in the hotel. With the understanding that they would be back at 0700 to start back with the testing of the signals on the following day.

Q. Was it planned to do this, to leave the signals out of service and go home at 1900 and come back the following day?

A. It was planned. The suspension was supposed to take approximately a day and a half. I had authorization to do it through about 2 days. We conduct a call prior to this, about 2 weeks prior, to set up the suspension. The Transportation Department asks for timelines. I had given them a timeline of a

day and a half.
Q. How many times was your signal cutover interrupted by train movement?
A. That would have been three trains had come into our signal suspension, total.
Q. Three trains during the cutover?
A. That's correct.
Q. On the 3rd?
A. Yes. With an additional that was parked on the north end just almost into the suspension itself, but it was over a section I had to test.
Q. And so basically that stops portion of your signal cutover?
A. It stops in the area that I needed to test. The places where they stopped, they were actually working the ramp so I was unable to get in there to test that section. I continued testing on each end of it, hoping to tie them together in the middle, which is where the train was sitting.
Q. So can you tell me how many hours your cutover was interrupted by transportation movement or train movement?
A. It's not -- there was transportation movement for approximately 6 hours total in the middle of it. I don't really consider it an interruption because we're used to working that way. We do have processes in place. We do go do signal calling on the other end of that suspension while we're doing that.
Q. What about the signal discontinuance? Did you make any

application or ask permission from the Federal Railroad Administration to have a discontinuance of the signal system?
A. I personally did not. I -- as I was trained to do this job, we've always had signal suspensions in place. That is what we go off of, what we work with, with the Operations Department, and that is how we've always done it.
Q. Did I ask you to give me your title? Did you give me your title earlier?
A. I may have. It's service test engineer, and it's got a 2 after it. I don't know exactly why.
Q. Okay. So you said the signal suspension was lifted on February the 6th; is that correct?
A. The 6th; that is correct. Yesterday, February 6th, at 1312.
Q. How many hours did it take you to complete the signal cutover to put -- to release the signal suspension to put the signals back in service?
A. Actual work time?
Q. Actual time.
A. It took us about 2 hours, including getting people in place and running the signals that we needed to do. And then we also had people in place to check the switches.
Q. So in 2 hours' time you were able to put the signal system back in service --
A. Yes.
Q. -- is that correct?

A. Yes.

MR. PAGE: All right. Thank you. I've got no further questions at this time. This is Ricky Page. I'm going to pass the opportunity to interview to Rail Accident Investigator Tomas Torres.

MR. TORRES: Tomas Torres with the NTSB.

BY MR. TORRES:

Q. Can you explain the process again as to when you -- how the suspension starts? You said -- you mentioned 2 weeks.

A. So --

Q. Explain that process.

A. Yeah. So if we go back to the original, we set up conference calls. We are sent all of the information for the pertained area of where we're going to have the signal suspension. That is to make sure that everything is written correctly. This is for bulletins, maps, making sure that we are getting the correct area suspended. We have Transportation employees on there as well as the service test engineer, the construction guys, and also the designers, design firms are on there. And we discuss to make sure that it is correct. We have another call afterwards to again make sure that they are correct.

And then when they go into -- now I don't know the timeline. I know that several days prior is when they start handing it to the employees in the Transportation Department, job briefing with them, making sure that they have it, understand what they're going

to be going into. I believe that they also stated that they did have that -- I think, it was 48 hours at least prior.

The day of cut-in, we put the signal suspension into effect after we're allowed to. That means sometimes it can go just a little bit later or a little bit before the time it was originally planned to try and get the work done in 1 day, is of course the goal. But this one was a little bit long and we knew there was train traffic, so we knew it was probably going to take a day and a half.

Q. Okay. So you say you and Operations or Transportation Department get together on it?

A. Yes.

Q. And who writes the bulletins? Is it a combined effort or --

A. There is actually someone in Jacksonville who writes it, and then we just help them try to make sure they're correct, but they are the ones who write it.

Q. So you verify the limits?

A. Yes, sir. Make sure we explain to them which signals will be replaced. It's got not just the suspension bulletin; it also talks about in-servicing signals. If we change a control point, it would of course be in there. Milepost limits, because we're so exact now with GPS, they sometimes change a little bit. That's all got to be in there so that the train crews have an exact.

Q. Okay. So once it takes effect, and the crews already have it for 2 days, right, so they have advance warning --

A. Yes.
Q. -- or notification that there's going to be a signal suspension in effect. So what kind of precautions are taken to ensure that they have -- that the crews have good understanding of what's taking place?
A. They do make sure the trainmasters are on duty. They are to job brief with all crews coming into a signal suspension. I don't get to see that side of it so I can't elaborate on it. What is talked about on the call is that every crew is job briefed directly by their supervisor, so that they have -- they know the understanding is there.
Q. All right. So how about the switch protection? Is that going to be strictly operation?
A. Switch protection is under the operating rules. It's switch position awareness forms during that time that applies to both us and train crews.
Q. Okay. So was there any flagmen in place?
A. There were no flagmen in place.
Q. None at all?
A. No. They were not requested for this. The train crews would be throwing it themselves.
Q. Okay. So they would just get authority, what they call EC1 --
A. Yes, sir.
Q. -- under the limits.

[redacted]

A. Yes, sir.
Q. And there will be no flagmen or nobody protecting the switches or anything like that?
A. Not on this one, sir. Sometimes we do use them, but not on this one.
Q. And the times that they do protect the switches or you have flagmen on it, what are the reasons why? I mean, what --
A. I've never seen them do it in a hand-throw. We only do it at very busy sections where it's a controlled switch. Now it's not controlled during that time because we are in signal suspension, but they will throw those switches, confirm the points, and allow a train to go into like a siding. Then there is a speed restriction through turnouts during that time. They will specify that within the bulletin.
Q. Can you explain that, you know, you had -- you requested it for a day and a half.
A. Yes, sir.
Q. Because you figured it would take you that long.
A. I did.
Q. And you guys went to work from 7 a.m. to 1900 --
A. Yes, sir.
Q. -- 7 p.m.?
A. And we originally had a thought that we would take a lunch, which would've -- you know, we were going to do a full hour for everyone to make sure that we could work a little bit longer if we

had to. At that time there was a train at the north end which was keeping me from doing that section right there. So it was better for me to have guys well rested for the morning to make sure that we could get it done right away.

Q. Okay. And is there a reason why you couldn't give that segment of track back to the --

A. We are not allowed to turn partials back. We don't ever return a partial. I've never been shown any way to do it. I've asked about it. I've just never been shown, never --

Q. I mean, would it have been possible, you know, where we expire 1900, and we're going to turn everything back up and hand it back to the train dispatcher? Would it have been possible to do that?

A. It would not because of the sections. I was missing a section in the middle and a section at the end. So the very small section that I could have turned back that I had seen everything for would've just been the most southernmost. There would have been two control points up to the control point where our trailer was, which again I've never been given permission to do that, but that would be -- would have been the most we could have done. The switches, like I said, I had not seen the indications from those yet, and I then I had not seen the north end yet.

Q. Okay. And can you explain the purpose of the signal suspension, first of all, and the testing that's involved?

A. Yes. So to -- in order for us to put all of the new

equipment in service -- you know, we have changed programs. Two of the locations here had older type control units, which require chip changes. Most of them were actual just program changes. Once we put them in, we can't give signals that haven't been tested to the trains. So we put a signal suspension in place to make sure that we don't give them any false aspects, things that they wouldn't be used to, and plain wrong. They could be wrong, and I have to catch those during that time. And we have caught them before during that time and made sure we have them fixed before we put them in service.

Q. So the upgrades for --

A. This is for PTC.

Q. PTC.

A. It is. We have actually chosen to upgrade to a better system that's more reliable, using better control boxes to try and lessen the amount of downtime of PTC trying to make things better.

Q. So when you're doing your testing, you're checking that the signals are having -- they're conveying the proper signal indication; is that it?

A. We make sure as we walk through -- we simulate trains. We walk through and make sure that signals of course go to stop when they should if there was occupation. We make sure that they upgrade correctly with the signal that's ahead of them due to codes, and we also make sure that anything that's in between in those blocks affects it appropriately, like a switch. We don't do

them anymore, but, you know, if we would have had something where a crossing interrupted a signal system, that kind of thing would have to be checked. So that's what we do, we walk it through just like a train would, and make sure they're correct.

Q. Okay. It was discussed in the last couple days about the train dispatcher screen.

A. Yes.

Q. CAD system.

A. Yes.

Q. When the system is suspended --

A. Yes.

Q. -- do you know how that affects his computer or his screen?

A. I know that he gets a signal suspension up at the top. I don't -- I have not seen their screen personally. I have never gone into their room and looked at it during the signal suspension. Been in there prior to.

I know that they get a little "SS" for signal suspension. I get a mockup screen, which is not as detailed, and I see the SS. I'll see L for local control, because we hold local control at all locations during that signal suspension because we are the ones lining the signals, not him.

Q. So local control means?

A. That we are actually able to line signals in the field.

Q. That you on the ground has control over it?

A. That's correct, yes. It takes the control away from the

[redacted]

dispatcher. You wouldn't want him lining something up in a signal suspension because it wouldn't be valid.

Q. So when there's a signal suspension, the train dispatcher has no control?

A. That's correct, within that. They are able to line in on each side. If there is a switch at that section, the switch is -- they're allowed to throw that switch to bring you into the suspension, but it only governs over the switch or like at this location we had a holdout; it only governed them into the suspension. It was just like going into dark territory where you do not give them indication of what the track is or the switches or anything. It's just to come into the suspension.

Q. And the holdout signal, can you explain what that is?

A. Okay. So holdout signal is a back-to-back signal with no switches. It just gives them control, allows them to stop a train in an appropriate place or to allow them to move from an appropriate place.

Q. So he -- if that signal is under their control, they can give a clear signal, green? Or a red signal?

A. They give whatever is appropriate. To come into a suspension it's usually an approach, which would be a yellow. Because, again, the signal that comes in is not governing any movement. It's just saying you can come in. There's nothing in the track that's indicated by that, where under a normal signal operation you would know what's ahead of you. It could be a green as long

as you've got a yellow ahead of it or an advance approach ahead of it.

MR. TORRES: Okay. Thank you. That's it for right now. I'll pass it on to FRA.

MR. LINDSTROM: Rick Lindstrom.

BY MR. LINDSTROM:

Q. Who writes the bulletins?

A. It's in --

Q. You said Jacksonville.

A. It is in Jacksonville. They have -- I believe it's a contractor that writes them, but it has to be approved through CSX.

Q. Okay. So that's got to go through each department?

A. Yes. It's controlled by Operations. It is not controlled on our end. Because as signal people, a lot of times it's -- the wording to us, if we wrote it the way we would write things, it wouldn't make as much sense to them, so it's always coming from their side. They're the ones who are doing the job briefing.

And that's what the suspension bulletin really is, is what they use for their job briefings to make sure they know exactly what's going on.

Q. You said that the trainmasters are all briefed on it and they know all this. Do you know if the dispatchers are briefed on it?

A. So, yes, they are briefed on it, and we do have representatives that sit in there to try and help them with

anything that they would --
Q. Okay.
A. Any questions they may have, they try to help them with that. Now they are -- the representative actually just pretty much helps me. So he's giving requests to him of, you know, where do we have trains, what could interrupt this, and he tells me what could interrupt it, and then I plan for it.
Q. Representative --
A. He's a prior employee usually of the -- I'm guessing dispatchers.
Q. Okay.
A. He knows the system. So he's able to let me know, hey, you're going to have an interruption, you're going to have trains that come through, you're going to do this. And then he also requests if I need to get outside help as far as tying into -- even though the signal suspension ends at one point, we still have to tie in to the outside part, so he'll ask for that for me.
Q. Okay. Then I want to go back to I think what you called flagmen. We're talking switch --
A. Tenders is what we call them, yes. And we did not have any switch tenders on this job. And that is requested by Transportation, not by us.
Q. I'm just going to ask you just for a general number. How many cutovers have you done or signal suspension cutovers?
A. I've done a lot.

Q. Just an estimate.
A. I could say in the last -- since the beginning of last year, I'm at 12. Now that's the beginning of last year. So it was 10 last year; I've done 2 already this year. I average about 10 a year.
Q. About 10 a year?
A. Yes, sir.
Q. Out of all of them, how many have you used switch tenders?
A. Honestly, it has not been that many.
Q. How many?
A. If we are near a yard -- we did one in Charleston, and in the yard we used switch tenders because there are so many switches there, and they need to get in and out of the yard faster than somebody getting off the train --
Q. So, I mean, like --
A. I would say maybe five of all of those.
Q. Okay. You did --
A. It is very rare.
Q. And you've done 10 a year since 2013?
A. Now, I've done this job since 2013. I did not start doing my own cut-ins till at least 2014.
Q. Okay.
A. They had me working with another test engineer helping him pre-test and learn the job.
Q. So you've been doing it for about 3 years?

A. About 3, 3½ years, that's correct.
Q. So that's 30, and you used switch tenders on about 5?
A. About five.
Q. Okay.
A. It hasn't been that many.
Q. The switch tenders that were used, if you can remember, did they go out and do hand-throws also or did they do just --
A. I never had one on a hand-throw. They were always just power switches.

MR. LINDSTROM: Okay. That's all I have.

BY MR. PAGE:

Q. Okay. This is Page again. Mark who makes the decisions of how to mitigate risk during these signal suspensions far as train -- far as the train meets or train, a train traveling through your signal suspension?
A. The dispatcher sets up the meets. He would bring people in. We do have 707s during this time, so we do have employees that let them come through. But that's really all they do, is allow them that section of track, and it's pretty much to just move.
Q. Explain the 707, please.
A. 707 is a track warrant where you hold the track. You allow people to work within a certain milepost to another milepost. This one we used three of them to make sure that they could hear by radio, whatever train comes through, make sure that we were never stretched out too far.

[redacted]

Q. You stated that you have probably done about 12, I think, last year cutovers?
A. Between last year and this year; that is correct.
Q. Have you in your experience of signal suspension and cutting over signal systems, have you mitigated risk for trains by restricting trains to restricted speed?
A. We have not, no. No, we -- in general, we try to move the train through so that he can get from one point to the other and we can continue testing. That is the normal.
Q. What about switch protection? We talked about train switch tenders, but what about switch protection far as clamping and using an effective securing device?
A. So hand-throws are, if they're electric locks, they're left as they are. Regular power switches, we put a -- what we call a RECo lock, which is a half-inch nut drive lock, and we lock it in hand-throw so that they cannot power throw it. But the hand-throwing is up to them. We do allow them the ability to do that. We do not spike or clamp them.
Q. You do not spike or clamp switches during a signal --
A. No. We do not.
Q. -- suspension?
MR. PAGE: I've got no further questions.
Mr. Lindstrom.
MR. LINDSTROM: I've got one more.
BY MR. LINDSTROM:

[redacted]

Q. When you're doing a cutover, first thing you do is set up your track circuits; is this correct?
A. Yes, sir. We do as much as we can to set up the track circuits quickly. That helps me. When the signal suspension starts, if it is a tape load, I lose my screen so I'm not able to see anything for about the first 2 hours or so. But I like to see my suspension. That doesn't mean everybody does, but I like to see what's going on, and so I ask them to set them up first thing.
Q. So when you set up your track circuits, once they're set up and running, do you verify your track circuits with the office, with your back room --
A. I do before we end the cut-in.
Q. Okay.
A. We verify -- towards the end -- I have to make sure that a train tracking through there can't get lost. So I make sure that on my screen I see every track circuit that goes down, and that doesn't matter if it's a siding or a main.
Q. Is it possible to do that before the end of the cut-in? Like once they're set up.
A. Most of the time -- is it possible? I would say, yes, it's possible.
Q. Okay.
A. I think that most of the time I end up with track circuit problems for most of the cut-in. I hate to say, but that's the truth. That is the truth.

[redacted]

Q. So by doing that --
A. And I really try to mitigate that, but --
Q. So by trying to do that ahead of time, it would basically stop your cut-in until you got it all figured up?
A. That's correct. Because like with this -- chip changes take longer than program loads. So the southern part of this I had originally planned to be the end of my testing. But because of movements, I ended up moving it to the southern end first. It took them probably 2½, 3 hours just to get the units up.

So they weren't setting those track circuits up until the units are up. Once the units are up, they set my track circuits up, and that took about another hour. So about 4 hours before they were able to do that.

Q. Then the last thing that I have is, these trains that were in your signal suspension, you had one on the north end?
A. That was just outside, yes.
Q. Just -- but he was inside your edge?
A. He was right on the edge. Yes.
Q. And you say --
A. He made it so I could not tie in.
Q. And then you had the one working the outer ramp, which is basically in the middle of your signal suspension?
A. That's correct.
Q. And then you had another train pull up on the south end of your signal suspension, right?

[redacted]

A. That is correct.
Q. Not all the way, but I mean --
A. He came almost to the halfway point.
Q. And this started at, from what I'm understanding, about 1100?
A. I did not -- yeah, I did not have any trains interrupt to where they really interrupted until around 1100.
Q. And then that went till 1700?
A. Went close to 1700 before we could move them all out, yes.
MR. LINDSTROM: You did great. Okay. I'm done. I'm done.
BY MR. PAGE:
Q. I've got a couple more questions. This is Page.
Post-accident --
A. Yes, sir.
Q. -- did you download the wayside signal data from Cayce Yard to the accident location?
A. Once I was with you, I did. We did not download anything until -- was that Monday? I'm kind of mixing up on my days right now, but -- yes, we did before today, yeah.
Q. And you said that I was with you. In our observations of the download, were we able to determine when the Amtrak train was on each track block?
A. Yes.
Q. With that being said, should the dispatcher also see a track block light or track occupancy light indicate on his panel as the Amtrak progressed through the block?

A. He should.
Q. Would the freight train F777 in the siding with the switch reversed, would that also have left a block light on?
A. Yes, it would.
Q. So the dispatcher would have seen a block light preceding the Amtrak 91-03?
A. There should have been a block light between Richland and south end, Dixiana.
Q. The signal download data that was downloaded, did it indicate that a block light was on?
A. Yes.
Q. At the accident site?
A. Yes.
Q. What time did it indicate that the block light came on?
A. 2030, approximately.
Q. Did the block light ever go off or did the track ever indicate unoccupied after that --
A. No.
Q. -- until after the accident?
A. No.
Q. Does Transportation take the responsibility for mitigating risk of meeting trains and moving trains through the block?
A. I would believe so.
MR. PAGE: I have no further questions. Mr. Torres?
MR. TORRES: No. You asked the questions that I was thinking

about.

BY MR. PAGE:

Q. Do you have anything that -- Mark, this is Page again. Do you have anything that you'd like to add?

A. No, sir.

Q. We may have follow-up questions. Would you mind if we contacted you?

A. You may.

MR. PAGE: On behalf of the NTSB, I would like to thank you for your time and cooperation.

This concludes this interview.

(Whereupon, the interview was concluded.)

[redacted]

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF:	COLLISION OF AMTRAK TRAIN #91 AND A STATIONARY CSX TRANSPORTATION TRAIN NEAR CAYCE, SOUTH CAROLINA FEBRUARY 4, 2018 Interview of Mark Michael
ACCIDENT NO.:	RRD18MR003
PLACE:	Cayce-West Columbia, South Carolina
DATE:	February 7, 2018

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]

Katherine Motley
Transcriber

[redacted]