



MEMORANDUM

To: The Honorable Robert L. Sumwalt, Chairman of the NTSB

Attn: Richard Hipskind, Investigator-In-Charge

From: Steve Ammons, Director Train Handling Rules and Practices

Date: October 17, 2018

Re: Post-Investigative Hearing Submission on Cayce, SC Accident (RRD18MR003)

CSX Transportation, Inc. ("CSXT") respectfully provides this memorandum to assist in the National Transportation Safety Board's ("NTSB") investigation of the collision between an Amtrak train and a stationary CSXT train in Cayce, South Carolina, on February 4, 2018. CSXT appreciates the opportunity to submit this memorandum for your consideration.

I. EXECUTIVE SUMMARY

On February 4, 2018, at about 2:37 a.m. Eastern Standard Time, southbound Amtrak Train 91 was diverted into a siding and collided with a standing CSXT train. The accident happened on CSXT's Columbia Subdivision in Cayce, South Carolina. A Signal Suspension was in effect that started at 8:00 a.m. on February 3, 2018 because CSXT was performing a signal cutover from the existing system to a new system to implement technology required for the statutorily-mandated Positive Train Control ("PTC").

CSXT has a long record of performing signal cutovers safely and without incident. From 2008 to 2017, CSXT performed 802 cutovers – many associated with PTC implementation. In 2018, CSXT expects to perform another 119 cutovers. Our employees have always been, and continue to be, trained properly to move trains through Signal Suspension areas without incident. This includes dispatchers, conductors, locomotive operators (engineers), and signal crews in the field. CSXT's investigation of the accident concluded, however, that it was caused by the crew's failure to follow critical rules.

CSXT planned for the Columbia Subdivision cutover that started on February 3 according to its long-established process, which included briefings and coordination with its employees and Amtrak. Nevertheless, after the accident, CSXT immediately analyzed how it could ensure an accident like this would never happen again. CSXT reviewed the Signal Suspension process and made several enhancements. The Company also reviewed and enhanced its Operating Rules and implemented recommendations of the Federal Railroad Administration's ("FRA") Draft Safety Advisory that was proposed on April 18, 2018.

Since the Cayce accident, CSXT has successfully utilized its new processes and rules for approximately 24 Signal Suspensions.

II. INTRODUCTION

On July 10 and 11, 2018, the NTSB held an investigative hearing on “Managing Safety on Passenger Railroads” that included exploring issues raised by the Cayce accident. During this two-day hearing, CSXT representatives Matthew Meadows, then Director of Operating Rules and Practices and currently Senior Director Safety, and Jason Schroeder, Assistant Chief Engineer, Communications and Signals, testified during the panel on Amtrak Operations on Host Railroads.

Mr. Meadows and Mr. Schroeder each submitted presentations to supplement and summarize their testimony (Hearing Exhibits G-16, G-17), and CSXT submitted Hearing Exhibits G-8 through G-17 before the hearing. CSXT also made two post-hearing submissions on August 10 and 17, 2018 in response to requests for additional information from the NTSB.

Much of Mr. Meadows’ and Mr. Schroeder’s testimony, presentations, and responses to questions at the hearing, as well as the CSXT exhibits, address the enhancements CSXT made to its Operating Rules and Signal Suspension process to prevent such an accident from recurring. In the 24 Signal Suspensions since the Cayce accident, CSXT has effectively implemented the enhanced procedures and has had no accidents.

In this memorandum CSXT addresses: (i) the planning for the Signal Suspension during which the accident occurred; (ii) CSXT’s immediate response to the accident and post-accident Signal Suspension process and operations enhancements; and (iii) CSXT’s continued commitment to safety.

III. PLANNING FOR THE COLUMBIA SUBDIVISION SIGNAL SUSPENSION

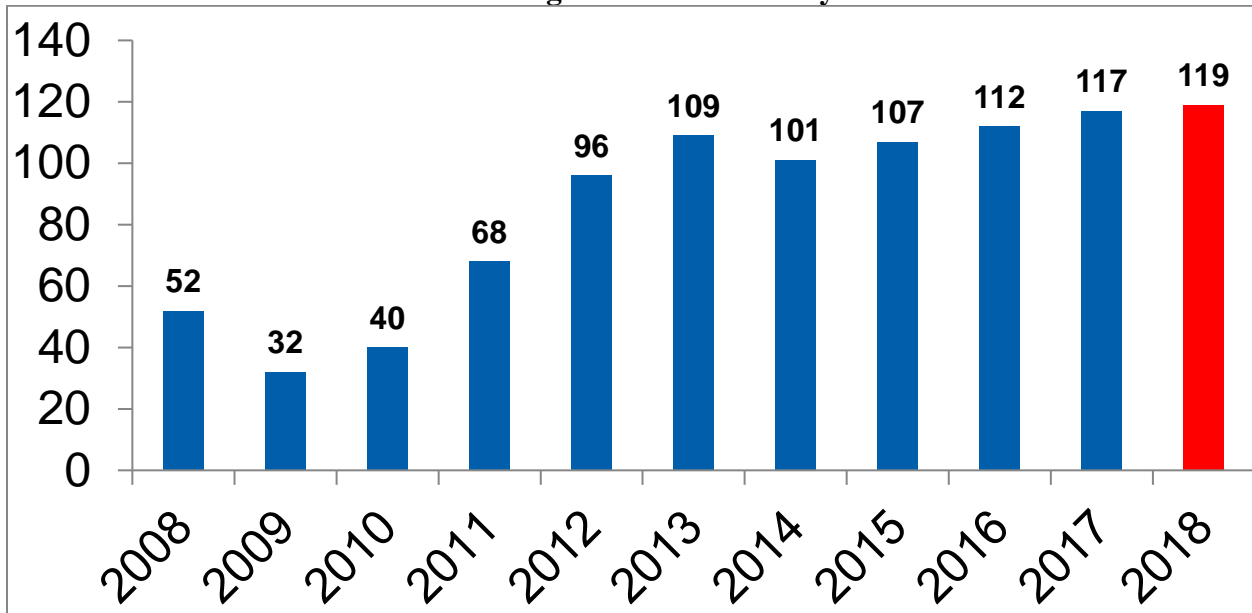
A. CSXT’s History of Safely Using its Signal Suspension Process

CSXT has effectively used its Signal Suspension process for decades. When CSXT converts an existing signal system to a new system, it is referred to as a signal cutover. A Signal Suspension is in effect during a signal cutover and provides the Signal Department with the opportunity to test the new system before it goes live. As demonstrated below, the implementation of PTC, beginning in 2011, has drastically increased the number of signal cutovers.

1. Signal Cutover History

Before PTC, approximately 600 track miles were involved in signal cutovers annually. Since 2011, that has increased to approximately 2,000 track miles each year – 75% of which are attributable to PTC. This process has contributed to CSXT being a leader in implementing PTC. To date, in excess of 94% of PTC-related signal cutovers have been completed and CSXT anticipates significant reductions in signal cutovers beginning in 2019 when it expects to complete PTC implementation.

CSXT Signal Cutover History



(Hearing Exhibit G-16: Estimated at time of Hearing)

During a Signal Suspension, track warrant control rules (“TWC-D”), a subset of CSXT’s Operating Rules, are in effect. These rules apply to non-signaled track (so-called “dark territory”) and are in effect every day on approximately 6,000 miles, or approximately one-quarter, of CSXT’s system. TWC-D rules authorize dispatchers to verbally instruct trains to proceed within authority limits. All dispatchers are trained on the Operating Rules that apply to both signaled and TWC-D territory, as are all locomotive operators and conductors. (August 10, 2018 CSXT letter to Joe Gordon). Applying the same familiar and consistent rules during Signal Suspensions that apply to operations in non-signaled territory improves safety by simplifying operating procedures for CSXT’s employees.

Indeed, CSXT uses the same Signal Suspension process for every signal cutover and has done so safely for many years. As Mr. Schroeder testified at the hearing, the railroad has not experienced another accident of this type during a Signal Suspension. (Hearing Transcript 88:24-89:1).

2. Signal Cutover Planning

For many years prior to the Cayce accident, CSXT successfully used an established process when planning for signal cutovers. A key component of this process is coordination between CSXT and the other railroads that use its tracks. In the case of Amtrak, an annual meeting between CSXT and Amtrak operations managers occurs each December to discuss anticipated system production work for the coming year, including Signal Suspensions. Every Friday throughout the year, CSXT sends an email to Amtrak detailing all system track work that will occur the following week. CSXT also hosts a twice-weekly call with Amtrak to discuss operating issues, such as ongoing and planned track work and Signal Suspensions.

In addition to these frequent, comprehensive and explicit communications, representatives from CSXT (including dispatching, transportation, passenger operations and engineering) and Amtrak also communicate more specifically regarding a Signal Suspension as it approaches, using established planning checkpoints that include coordinated communications and meetings at 60, 30, 14 and five days out. Moreover, prior to a Signal Suspension, CSXT distributes a written comprehensive Job Briefing Package to all stakeholders. (Hearing Exhibits G-8, G-16).

CSXT followed this established process when planning the Columbia Subdivision Signal Suspension. The Amtrak Briefing Materials for the Signal Suspension contained the relevant subdivision bulletins, which describe the impact on trains, Operating Rules that apply, instructions regarding switches and train speeds, signal changes, timetable changes, limits of the suspension, and job briefing guidance. (Hearing Exhibit G-8). A separate Job Briefing Package is issued to CSXT dispatchers that also includes the applicable train bulletins. In addition, dispatchers are governed by Procedural Instruction Manuals (“PIMs”), which supplement Operating Rules. Procedural Instruction 15 is part of every Signal Suspension Job Briefing Package and outlines the steps that must be taken during the Signal Suspension, including issuing dispatcher messages, job briefings, the conditions for issuing authority, and special instructions for CSXT’s Computer Aided Dispatch System (“CAD”). (Hearing Exhibit G-8, at 12-21).

B. Employee Signal Suspension Training

CSXT employees have been – and continue to be – trained to safely and properly move trains through Signal Suspensions. For dispatchers, trainees participate in a rigorous eight-week classroom-training program. As they go through this program, trainees are tested weekly. During this time, trainees also ride trains in the field and accompany track inspectors. A trainee will not become a qualified employee if he or she does not maintain an established average on quizzes and tests.

After initial training, trainees are assigned to a specific territory for on-the-job training and sit with a qualified train dispatcher to learn the particular desk. This is where trainees learn the physical characteristics of a territory. A trainee spends approximately nine weeks on each desk before “marking up” as qualified on that desk. Prior to being qualified, a trainee must be observed by the Chief Train Dispatcher to be able to work unassisted in a safe and efficient manner. Dispatchers are required to be trained on and are tested on CSXT’s Operating Rules and on Passenger Train Emergency Preparedness. Additional training is provided, as needed, when there are changes to CSXT Operating Rules or procedures. Further, dispatchers have the opportunity for more road review and territory rides upon request. (August 10, 2018 CSXT letter to Joe Gordon).

Conductors and locomotive operators are trained both on the territory in which they operate and on the Signal Suspension process. Conductor training on a territory ranges from 4 to 23 weeks depending on the complexity of the territory in which they will be working. Locomotive operator training ranges from 12 to 26 weeks, also depending on the complexity of the territory in which they will be working. More time can be added to that schedule if a manager determines it is needed. Employees may also request more training time.

Following the Cayce accident, CSXT conducted several Blitzes that included testing and briefings on proper procedures for operating during Signal Suspensions. Blitzes are part of CSXT's training program and are used to place additional emphasis on particular rules or processes. (Hearing Exhibits G-12, G-14 & G-15). Ongoing training forms a core component of CSXT's commitment to safety, and CSXT continues to conduct Blitzes and other training programs across its system.

IV. CSXT'S RESPONSE TO THE FEBRUARY 4 ACCIDENT

CSXT's Operating Rules in effect at the time of the accident would have prevented the accident had they been followed. Nevertheless, following the accident, CSXT performed a comprehensive review and enhanced three Operating Rules. (Hearing Exhibit G-9). CSXT also revised its Signal Suspension Operating Plan to emphasize redundancy and communication among the Signal Department, dispatchers, train crews and others affected by a cutover. Changes included implementing recommendations from the Draft FRA Safety Advisory, specifically: (i) enhanced safety and operating practices; (ii) new switch locking procedures, and (iii) training and testing employees on the additional procedures.

A. Operating Rules

CSXT made changes to three Operating Rules to require additional communication between a locomotive operator and conductor, and between the crew and the dispatcher when operating switches. Operating Rules now require employees restoring a main track switch for purposes of releasing track authority to remain at the switch until verbally confirming with each crewmember the switch is properly restored and locked (Operating Rule 401.14); all crewmembers must agree it is safe to release track authority, must be present when authority is released, and must hear the authority being released to the dispatcher (Operating Rule 505.11); and all crewmembers must agree that any switch operated is properly restored and locked – if in doubt, authority must not be released, and if there is any confusion, the dispatcher must be contacted immediately. (Operating Rule 505.12). (Hearing Exhibits G-9, G-16).

B. Safety and Operating Practices

1. Job Briefings and Monitoring

The revised Signal Suspension Operating Plan modifies how job briefings are conducted to provide for face-to-face briefings where possible or briefings on dedicated phone lines manned by supervisors before trains operate through a Signal Suspension. Foreign line employees participate in these CSXT job briefings or are briefed by their direct supervisors. During the Signal Suspension, Transportation supervisors monitor train activity within the limits and perform operational testing. Dispatchers likewise receive job briefings from Operations Center supervisors, who also monitor train activity within suspension limits and perform operational testing. (Hearing Exhibit G-11).

2. Resource Planning and Switch Lock Procedure

Like the FRA Draft Advisory, the Plan provides that the Signal Department will continue to provide sufficient resources to minimize a Signal Suspension's duration and the number of

control points affected. The Plan also introduced a new procedure for securing switches that prohibits transportation employees from operating switches within a Signal Suspension without coordinating with the Signal Department. Specifically, once the train dispatcher authorizes the start of a Signal Suspension:

- The Signal Department places all power switches within the suspension on hand-throw, meaning that power is removed;
- All switches within the suspension, regardless of type, are secured with a Signal Department lock and red tag that reads, “Attention: This switch is secured by Signal Department due to signal suspension.”
- Before trains operate through the suspension, the Signal Department reports to the dispatcher the position of each switch and that it is locked and tagged;
- When the cutover is complete, the dispatcher cancels the Signal Suspension and the Signal Department restores power to power switches and, for all switches, replaces the Signal Department lock and tag with a transportation switch lock. (Hearing Exhibit G-11, G-16 at 8).

If a switch must be operated during a Signal Suspension, it must be authorized by the dispatcher. In that event:

- The train crew or switch tender communicates to the Signal Department to unlock the switch;
- The crewmember or switch tender lines the switch for the train route and the Signal Department employee verifies that the switch is properly lined for the train movement and secures the switch with its lock and red tag;
- The train crew will not pass the location until confirming the switch position with the switch tender;
- After the train movement, the train crew or switch tender restores the switch and the Signal Department secures it with its lock and red tag. The train crew or switch tender reports to the dispatcher that the switch has been restored and is secured by the Signal Department, and also communicates the Switch Position Awareness Form (“SPAF”) requirements. (Hearing Exhibit G-11).

3. Operations Center

Under the Plan, the dispatcher's role now also requires that if during a Signal Suspension he or she authorizes a switch to be placed in a position other than normal, then an electronic tag is applied within CSXT's Computer Aided Dispatch ("CAD") System to the switch being used that is visible on the dispatcher's and locomotive's display. The dispatcher does not remove the tag until the switch is restored to normal position as verified by the steps above. Dispatcher turnover during a Signal Suspension consists of a thorough job briefing, including the status of any switches that are in other than normal position. (Hearing Exhibit G-11).

4. Train Operations

During the Signal Suspension, CSXT eliminated all unnecessary industrial and other switching within the suspension limits and also planned train meets are conducted outside of the suspension whenever possible. (Hearing Exhibit G-11, G-16).

5. Operational Testing

CSXT is conducting and will continue to conduct training and testing of employees on the changes to procedures. CSXT conducted three safety Blitzes between February 11 and May 19, 2018. (Hearing Exhibits G-12, G-14, G-15). Blitz 1, from February 11 to 24, focused on making sure train and engine employees correctly complete required documents, including a review of the EC-1 and Switch Position Awareness Form documentation and switch operation procedures. Blitz 2, from March 12 to 18, comprised of face-to-face briefings on the risk of occupying track without authority. Blitz 3, from May 13 to 19, again concentrated on EC-1 rules and also switch lock procedures.

These post-Cayce Blitzes were in addition to the operational testing that CSXT performs throughout the year. Operational testing requirements are set monthly and are based on regulatory requirements, safety trends, and high-impact rules such as train speed and track authority. CSXT also performs operational tests on foreign employees. The results of all testing is tracked and reported to senior leadership. (Hearing Exhibit G-17).

C. Amtrak's New Signal Suspension Risk Assessment Approach

CSXT supports Amtrak's new signal suspension risk assessment approach that extends across its host railroads. CSXT has worked with Amtrak to implement this approach and is committed to cooperating with Amtrak to develop and implement procedures tailored to its operations that promote safety for both Amtrak and CSXT. (Hearing Exhibit G-3). CSXT believes that the Amtrak process enhancements that it has seen to-date as well as CSXT's post-Cayce actions will help ensure that all trains operate safely and according to the rules during Signal Suspensions.

V. CSXT'S CONTINUED COMMITMENT TO SAFETY

Questions were raised at the Investigative Hearing about CSXT's safety culture, specifically: how CSXT manages less dwell time and higher operational efficiency with less

employees? Was safety a goal? How, or why was it not defined in Hearing Exhibit C-24 page 7 as presented? What is CSXT's measurement of safety? And why or was it not reached?

These questions relate to NTSB exhibits – specifically, the January 16, 2018 CSX 4Q 2017 earnings presentation to the investment community – that were marked on the day of the hearing and that contained content that was outside of the experience of CSXT's witnesses and our understanding of the scope of the questioning. CSXT addressed these issues in its August 10, 2018 letter to the NTSB.

First and foremost, CSXT emphasizes that during 2017, the Company did not decrease the amount of employee training given to dispatchers or train crews, nor did it decrease the amount budgeted for that training. Furthermore, as Mr. Schroeder testified at the hearing, the signal department's budget for making safety-focused signal-system improvements actually *increased* during this time. (Hearing Transcript 90:14-23).

With respect to 2017 safety goals and measurements, CSXT set its 2017 safety goals in the final months of 2016, and those goals did not change. In 2017, the Company continued to measure and report its safety performance and to strive for continuous improvement through training, innovation, and investment. The key safety measures, as published in earlier 2017 investor presentations and elsewhere, are the FRA Personal Injury Frequency Index and the FRA Train Accident Rate.

The FRA Personal Injury Frequency Index is determined by calculating the number of FRA-reportable injuries per 200,000 man-hours. CSXT's 2017 goal was to achieve a Frequency Index below 1.0. The actual result for 2017 was 1.22. While overall injuries increased slightly, it is important to note that the number of man-hours fell by approximately 9% in 2017, leading to a higher overall Frequency Index.

The FRA Train Accident Rate is determined by calculating the number of FRA-reportable train accidents per million train-miles. The CSXT goal for its Train Accident Rate in 2017 was 2.35. The actual result was 3.33. While this was a year-over-year increase to the index, overall FRA train accidents remained flat and most derailments occurred in yards, with significantly less reportable damages sustained as compared to mainline derailments. Again, it is important to note that the number of CSXT train miles decreased 12 percent year-over-year, leading to a higher overall Train Accident Rate.

As CSX moved into 2018, its new CEO, Jim Foote, reemphasized safety and stated repeatedly that safety is the Company's top priority. Mr. Foote and the new leadership team have backed their words up with actions. In May 2018, it was announced publicly that CSXT had engaged DEKRA, Inc. to perform a comprehensive safety assessment as part of the Company's intensified focus on improving safety performance for its employees, customers and the communities in which CSXT operates. Just days later, CSXT hired Jim Schwichtenberg as Vice President and Chief Safety Officer (who attended the hearings) to lead the DEKRA campaign and other safety-focused initiatives to help reestablish CSXT as the safety leader among North American railroads. Also in spring 2018, CSXT launched its "Have a Voice in Safety" program that allows employees to report safety concerns through the Company's employee gateway website.

CSXT's efforts at improving safety are working. During its recent earnings call on October 16, 2018, CSXT announced that its third quarter Personal Injury Frequency Index and Train Accident Rate improved to .84 and 2.76 respectively. CSXT undoubtedly remains committed to ongoing safety improvement.

The NTSB also asked about slide seven from the Company's 4Q 2017 earnings presentation, and, specifically, the relationship between train velocity, terminal car dwell and number of employees. CSXT's well proven scheduled railroad operating model is focused on safety, service and reliability with a goal of operating efficiently, consistently and predictably. This allows employees to understand expectations leading to better safety performance.

As CSXT reported to the Surface Transportation Board in December 2017, higher velocity is a catalyst for improvement on many levels. As trains speed up on the network and reach their destinations sooner, there are fewer trains running at any given time. This improves line-of-road fluidity and together with terminals processing cars more efficiently, leads to a higher level of on-time originations. When trains are operating in their scheduled windows and executing in timely coordination on meets and passes, movements further accelerate across the network. As a result, fewer locomotives and crews are needed to handle the same amount of freight, and our cars are able to cycle more quickly, such that total cars online decline. The end result of this virtuous cycle is faster transit, better service, markedly improved asset utilization, and greater efficiency at lower cost. With all employees working together efficiently and seamlessly across the system, the ultimate result is a safer, better-run railroad.

VI. CONCLUSION

CSXT's investigation of the Cayce accident concluded that the cause of the accident was the crew's failure to follow existing Operating Rules. In direct response, CSXT has made a number of enhancements to its rules and practices, including implementing recommendations from the FRA's Draft Safety Advisory, and it will continue to rigorously train its employees. CSXT is also committed to supporting Amtrak in its train operations through Signal Suspensions.

CSXT appreciates the work of the NTSB in connection with the Cayce accident.