Testimony of

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Before the

Subcommittee on Railroads, Pipelines, and Hazardous Materials
Committee on Transportation & Infrastructure
United States House of Representatives

— On —

The State of Positive Train Control Implementation in the United States

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An Independent Federal Agency

Good morning, Chairman Denham, Ranking Member Capuano, and Members of the Subcommittee. Thank you for inviting the National Transportation Safety Board (NTSB) to testify before you today.

The NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident and significant incidents in the United States, as well as significant accidents and incidents in other modes of transportation—railroad, highway, marine, and pipeline. We determine the probable cause of these accidents and other transportation events and issue safety recommendations aimed at preventing future accidents. In addition, we carry out special studies concerning transportation safety and coordinate the resources of the federal government and other organizations to assist victims and their family members who have been impacted by major transportation disasters.

On November 14, 2016, we announced our Most Wanted List of Transportation Safety Improvements for 2017–2018.[1] This list, based on safety issues we have identified in our investigations, highlights the 10 areas in transportation safety where we believe improvements are most critical. One issue area on this cycle's Most Wanted List is "Increase Implementation of Collision Avoidance Technologies," which addresses the need for positive train control (PTC) to reduce accidents, prevent injuries, and save lives.

The State of Positive Train Control Implementation

Yesterday marked the 10-year anniversary of the tragic accident in Chatsworth, California, in which a Metrolink commuter train and a Union Pacific freight train collided head-on, killing 25 people and injuring 102 others.[2] Our investigation concluded that the Metrolink engineer's use of a personal electronic device to send text messages distracted him from his duties and that positive train control (PTC) could have prevented this accident. In the aftermath of that tragedy and a number of others that the NTSB investigated, Congress passed the Rail Safety Improvement Act of 2008 (RSIA), which required the implementation of a PTC system on each line over which intercity passenger or commuter service is operated or over which poison- or toxic-by-inhalation hazardous materials were transported, by December 31, 2015.[3] In October 2015, Congress extended this deadline to December 31, 2018, and included provisions for railroads to request an additional 24-month extension to December 31, 2020, if certain criteria are met.[4]

Now, 10 years later and nearly 3 years after the original deadline imposed by Congress, PTC is still not fully implemented in the United States. The NTSB strongly urges swift

[1] NTSB, *2017–2018 Most Wanted List* (Washington, DC: NTSB, 2016).
[2] NTSB, *Collision of Metrolink Train 111 With Union Pacific Train LOF65-12 Chatsworth, California September 12, 2008*, Rpt. No. NTSB/RAR-10/01 (January 21, 2010).
[3] Rail Safety Improvement Act of 2008, Pub. L. No. 110-432, § 104 (October 16, 2008).
[4] Positive Train Control Enforcement and Implementation Act of 2015, Pub. L. No. 114-73, § 1302 (October 29, 2015).

implementation of the congressional PTC mandate. However, it is important to note that even after that mandate is met, significant portions of the rail network will not have PTC. According to reports from railroads to the Federal Railroad Administration (FRA), only about 40 percent of the rail network – or 58,000 of 134,000 route miles – will have PTC. Significantly, Amtrak will have over 1,400 miles of track it currently operates on that will not have PTC. If Amtrak continues to operate on these segments, there will be a diminished level of safety for passengers and train crews traveling communities such as Topeka, Kansas; Grand Junction, Colorado; Portland, Maine; Memphis, Tennessee; New Orleans; St. Louis; and many others.

In other cases, under its regulations, the FRA has approved exceptions to the PTC requirement for other main line tracks on which not only freight, but also other intercity passenger and commuter railroads operate. Again, this means that there will a significantly decreased level of safety for those passengers and train crews that are traveling on those railroads.

NTSB Investigations of PTC-Related Accidents

Since the enactment of RSIA, there have been 22 accidents we have investigated or are currently investigating that could have been prevented by PTC. These accidents resulted in 29 deaths, over 500 injuries, and over $190 million in property damage. These include:

- In September 2010, near Two Harbors, Minnesota, human error and fatigue contributed to the collision of two freight trains. Five crewmembers were injured.
- In May 2011, in Hoboken, New Jersey, human error contributed to the collision of a train with the bumping post at the end of the track.
- In June 2012, near Goodwell, Oklahoma, human inattentiveness contributed to the collision of two freight trains. Three crewmembers were killed.
- In May 2013, near Chaffee, Missouri, inattentiveness and fatigue contributed to the collision of two freight trains. Two crewmembers were injured and a highway bridge collapsed.
- In December 2013, in the Bronx, New York, fatigue contributed to the derailment of a passenger train. Four passengers were killed and 61 others were injured.
- In May 2015, in Philadelphia, Pennsylvania, an Amtrak engineer's acceleration to 106 miles per hour (mph) as he entered a curve with a 50 mph speed restriction, due to his loss of situational awareness, led to a derailment. Eight passengers were killed and 185 others were injured.

Two accidents currently under investigation occurred in DuPont, Washington and Cayce, South Carolina. Each of these accidents happened on tracks that were unprotected by PTC. While we are still investigating both, they are each a type of accident that a fully-operational PTC system is designed to prevent—overspeeds and misaligned switches.

Amtrak 501 Derailment—DuPont, Washington

On the morning of December 18, 2017, on its first regular passenger service trip, Amtrak passenger train 501 derailed as it traversed a curve near DuPont, Washington. The lead locomotive, the power car, and two passenger railcars derailed from an overpass onto Interstate 5. At the time of the accident, 77 passengers, 5 Amtrak employees, and a technician from the railcar manufacturer, Talgo Incorporated, were on the train. Of these individuals, 3 passengers were killed and 62 passengers and crewmembers were injured. Eight individuals in highway vehicles were also injured. Our investigation is ongoing, but on January 4, 2018, we issued a preliminary report regarding this derailment.[5]

Central Puget Sound Regional Transit Authority (Sound Transit), a public transit agency in the state of Washington, owns the Point Defiance Bypass tracks where the derailment occurred. Sound Transit reported that the PTC system on this line was not operational at the time of the accident. The authorized track speed decreases from 79 mph to 30 mph as the track approaches the curve. According to the lead locomotive's event data recorder, the final recorded speed of the locomotive was 78 mph. In this accident, PTC would have notified the train engineer about the speed reduction for the curve, and if he did not take appropriate action to control the train's speed, PTC would have applied the train brakes to maintain compliance with the speed restriction and to stop the train.

Amtrak 91 Collision with CSX Train—Cayce, South Carolina

In the early morning of February 4, 2018, an Amtrak passenger train unexpectedly entered a siding near Cayce, South Carolina, and collided with a stationary CSX freight train. Two of the crewmembers—the engineer and the conductor—were killed, and at least 92 passengers and crewmembers were transported to medical facilities. Our investigation is ongoing, but on February 28, 2018 we issued a preliminary report.[6]

At the time of the accident, a signal suspension was in place through the area, due to signal work being done, including upgrades to prepare for implementation of PTC. Trains were being directed through the area by a CSX dispatcher, who would issue warrants, or permissions, to use the main line. [7] The crew of the CSX train had completed work in the area, moved the train to the siding, and released their authority to use the main line back to the dispatcher. However, the switch on the main line was left open to the siding and locked. The Amtrak train, traveling at 57 mph, was diverted into the siding from the main and struck the CSX train.

[5] NTSB, *Preliminary Report, RRD18MR001* (January 4, 2018).
[6] NTSB, *Preliminary Report, RRD18MR003* (February 28, 2018)
[7] Signal suspension means train control signals located alongside the track have been taken out of service, oftentimes for maintenance or system upgrades. When these signals are taken out of service, train movements are controlled by means such as absolute blocks or by track warrants.

This is the second accident that we are investigating involving a train being unexpectedly diverted onto a side track because of a switch left in the incorrect position in an area of track under "signal suspension" due to installation and testing of PTC. On December 5, 2017, we issued an accident brief regarding the collision of two Union Pacific Railroad freight trains that occurred on March 14, 2016, in Granger, Wyoming. One crew member received minor injuries. We determined that the probable cause of the accident was that the employee-in-charge incorrectly used information from a conversation with the train dispatcher as authorization to send a train into the signal suspension territory. Contributing to the accident was the failure of a crew member to check the switch position before authorizing the train to enter the signal suspension territory.[8]

In both the Granger and Cayce accidents, human decision making and actions likely played key roles. Safe movement of the trains through the signal suspension depended on proper switch alignment, which, in turn, relied on error-free manual work. The risk of error was not safeguarded, either by technology or supervision. The reliance on error-free human performance for safe train movement creates a single point-of-failure given the current operating practices and regulations. We concluded that additional measures are needed, such as restricted speed, to ensure safe operations during signal suspensions, especially during the movement of passenger trains, due to the likelihood of harm to the traveling public.

Therefore, on February 13, 2018, we issued an urgent safety recommendation to the FRA to issue an emergency order directing railroads to require that when signal suspensions are in effect and a switch has been reported relined for a main track, the next train or locomotive to pass the switch location must approach with a restricted speed. After verifying the switch position, the train crew would be required report to the dispatcher that the switch is correctly lined for the main track before trains would be permitted to operate at maximum-authorized speed.[9] We only issue urgent recommendations when we determine that the course of action requires immediate attention to avoid imminent loss due to a similar accident.

On April 23, 2018, the FRA published a notice of draft safety advisory in response to our urgent safety recommendation. The proposed safety advisory recommends that railroads adopt industry best safety practices regarding railroad operations under temporary signal suspensions. Because FRA's proposal would not require adoption of such practices, as called for by our urgent safety recommendation, the NTSB has classified this urgent safety recommendation as "Open – Unacceptable Response." Furthermore, it is noteworthy that FRA has not even published proposed industry best practices. We believe that the FRA must act now to prevent accidents like those in Granger or Cayce.

[8] NTSB, *Collision of Two Union Pacific Railroad Freight Trains, Granger, Wyoming*. Rpt. No. NTSB/RAB-17-10 (December 5, 2017).
[9] NTSB, *Safety Recommendation Report: Train Operation During Signal Suspension*. Rec. No. R-18-005 (February 13, 2018)

On July 10 and 11, 2018, we held a two-day investigative hearing to explore issues involved in the DuPont and Cayce accidents. The purpose of the hearing was to elicit additional factual information about the accidents as part of our ongoing investigations. The factors involved in these accidents are comprehensive and we are examining a multitude of aspects beyond PTC, including Amtrak operations on host railroads and safety management systems in passenger rail.

Conclusion

The NTSB is gravely concerned that the majority of the Nation's railroads, particularly passenger railroads, required to install PTC will not have fully operational systems by the December 31, 2018, deadline. I appreciate the Committee holding another hearing this year on the importance of PTC, and I am here today to urge implementation of this lifesaving technology without further delay. For each day that goes by without PTC, we are at continued risk for another tragic accident.

Thank you for the opportunity to testify before you today. I look forward to responding to your questions.