

# Brotherhood of Locomotive Engineers and Trainmen

*A Division of the Rail Conference  
International Brotherhood of Teamsters*

## Safety Task Force

Independence, Ohio

Before the National Transportation Safety Board

NTSB Accident Number: RRD19FR010

Class: Regional

August 12, 2019

Proposed findings, probable cause, and safety recommendations, in connection with the collision and subsequent derailment of two CSX Transportation freight trains near Carey, Ohio.

Stephen J. Bruno, BLET-Safety Task Force, National Chairman  
Shawn D. Lawton, BLET-Safety Task Force, Party Spokesman

**Final Submission**

The Brotherhood of Locomotive Engineers and Trainmen (“BLET”), a division of the International Brotherhood of Teamsters (“IBT”), was granted party status by the Board in the above-referenced investigation. BLET respectfully submits these proposed, findings, probable cause, and safety recommendations to the Board for consideration.

## **Accident Synopsis**

On August 12, 2019, at approximately 5:08 AM Eastern Standard Time (“EST”) <sup>1</sup>, a westbound CSX Transportation (“CSXT”) manifest freight train (H70211) collided with an eastbound CSX manifest freight train (W31411) while operating on the CSX Columbus Subdivision at control point (“CP”) Spring, which is located at milepost (“MP”) CD76.5 near Carey, OH <sup>2</sup>. Two (2) employees were injured in the accident, and both were hospitalized and released. The territory consists of single mainline track, with portions of double track and is governed by centralized traffic control (“CTC”) rules <sup>3</sup>. The territory is under the control of the CSX LF Train Dispatcher in Jacksonville, FL. At the time of the collision, the striking train was operating at nine (9) miles per hour (“MPH”), and the struck train was operating at twenty-four (24) MPH. The controlling locomotive of the striking train (CSXT 736) was equipped with Positive Train Control (“PTC”) <sup>4</sup> and was operational. At the time of the accident, weather was cloudy, with the temperature of 59° F. Damages are estimated at approximately \$4.9 million.

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<sup>1</sup> All times throughout report will be Eastern Standard Time.

<sup>2</sup> Manifest freight trains are generally made up of a mix of railcar types, such as; boxcars, gondola cars, hopper cars, tank cars, and lumber cars.

<sup>3</sup> Centralized Traffic Control is a signaling system that uses block signal systems to authorize train movements.

<sup>4</sup> Positive Train Control is a system designed to prevent certain train collisions, overspeed indigents, incursions into established work zone limits, and the movement of a train through a Main Track switch in the improper position



**Figure 1 - Overview of Collision (Photo Courtesy of NTSB)**

## **Accident Narrative**

### **Train Information:**

#### **Striking Train - H70211:**

The striking CSX manifest freight train (H70211) originated in Columbus, Ohio (MP CD 1) and was destined for Willard, Ohio (MP BG 204). The train was powered by two (2) locomotives - one on the head-end (front) of the train CSXT 736 as the controlling locomotive and a distributed power unit (“DPU”) <sup>5</sup>, CSXT 3107, located at the rear of the train. The train had 109 loads and thirty-seven (37) empties, for a total of 146 cars. The train weighed 15,936 tons, and was 9,497 feet in length at the time of the collision. The H70211 had a maximum authorized speed (“MAS”) of forty (40) MPH due to tonnage restrictions.

#### **Struck Train - W31411:**

The struck CSX freight train (W31411) originated in Utica, IL (MP BIF 94) and was destined for Benwood, West Virginia (MP BN 5). The train consisted of two (2) locomotives. Both locomotives

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<sup>5</sup> Distributed power is a term referring to the physical distribution of a locomotive at intermediate points throughout the train. The distributed locomotives are remotely controlled from the controlling locomotive.

were on the lead -end of the train, with CSXT 477 as the controlling locomotive. The W31411 was a “unit train”<sup>6</sup> consisting of 110 loaded railcars. The train weighed 15,708 tons, and was 4,768 feet in length.

## **Method of Operation:**

The CSX Columbus Subdivision is part of the CSX Great Lakes Division between Columbus, Ohio (MP CK 4.2) and Fostoria, Ohio (CD 87.4). At the location of the accident, Springs (MP CD 76.5) there are two (2) Main tracks that converge into one (1) single Main track, each with a MAS of fifty (50) MPH.<sup>7</sup> Both the Main tracks have CTC signals enabling trains to operate in both directions.

## **CSX Rules and/or Documents for TY&E:**

Below is a list of documents that were produced by CSX:

- *CSX Employee Operating Manual*, effective July 1, 2019
- *CSX Columbus Subdivision Timetable No.1*, effective December 1, 2017
- *CSX Positive Train Control Training Guide*
- *CSX Positive Train Control Quick Reference Guide*
- *CSX Positive Train Control Bulletins*, effective July 19, 2019

No additional information was provided regarding the documentation and/or rules in effect at the time of this accident.

## **CSX train crews**

### Striking Train (H70211):

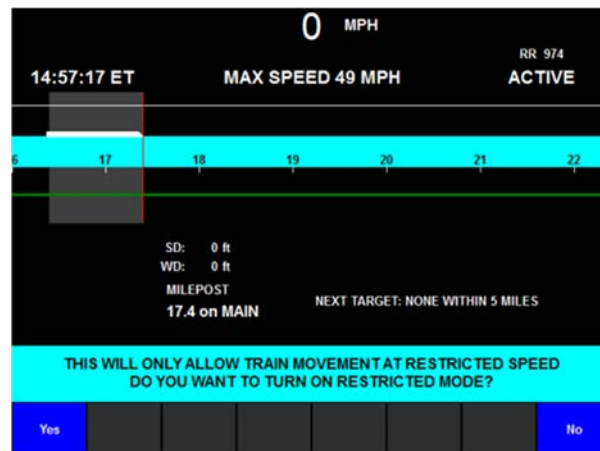
The crew of the H70211 went on duty at 9:00 PM on August 11, 2019. The crew was comprised of a Locomotive Engineer and a Conductor. Both crew members were based out of Columbus, Ohio. The train consisted of (2) locomotives and 176 rail cars.

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<sup>6</sup> Unit Train is a train consisting of all the same commodity.

<sup>7</sup> See Appendix A at the end of this report for relevant portions of the CSX Timetable.

They began their tour of duty by assembling the H70211 in Parson Yard, Columbus, OH, and completing the required air tests. Once arriving at Carey, OH, the crew was instructed to remove the block of cars destined for local industries around Carey from the rear portion of their train. This required the Conductor to dismount the lead locomotive at the eastward absolute signal (“EAS”) at Carey, while the Locomotive Engineer pulled the entire 176 car train past the EAS at Carey and brought the train to a stop. Once the H70211 was entirely past the EAS at Carey, the LF Dispatcher routed the H70211 towards the Center Siding <sup>8</sup> at Carey, where the railcars would be removed from the train for future delivery to local industries. In compliance with CSX rules, the Locomotive Engineer accessed the PTC computer on the CSXT 477 and enabled “Restricted Mode” <sup>9</sup> prior to reversing direction and shoving the train back towards the Center Siding (*See Figure 2 below*).



**Figure 2** - Example of PTC system prompts to enter locomotive into "Restricted Mode"

Once the train crew completed removing the railcars, the Conductor instructed the Locomotive Engineer to advance the train ahead and stop at Springs<sup>10</sup> where the Conductor would re-board the CSXT 477 to continue their trip.

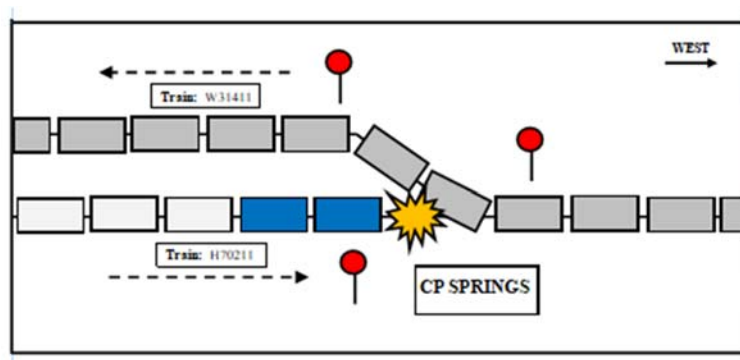
After performing the required air brake tests, and with PTC still operating in “Restricted Mode”, the Locomotive Engineer proceeded west towards CP Springs. Upon arrival at CP Springs, the

<sup>8</sup> See Appendix A for track arrangement at Carey, OH

<sup>9</sup> “Restricted Mode” is required to be enabled when the locomotive is working within industries, setting out cars, or performing other types of switching moves. See Appendix B.

<sup>10</sup> See Appendix A for track arrangement at Springs

westward absolute signal (“WAS”) displayed a Stop indication. Because the “Restricted Mode” was still active on the H70211, the PTC system was unable to detect the status of the “WAS” at CP Springs. With the PTC neutralized, H70211 was not brake enforced as it approached the WAS at CP Springs which resulted in H70211 striking the side of the W31411 that had already begun to cross over from the Main track to Main Track No. 2 in an eastward direction (*See Figure 3*).



**Figure 3** - Schematic of collision (Courtesy of BLET)

#### Struck Train (W31411):

The crew of the W31411 went on duty at 1:40 AM on August 12, 2019. The crew consisted of a Locomotive Engineer and a Conductor. Both crew members were based out of Garrett, Indiana. Their train consisted of (2) locomotives and 110 rail cars.

#### **Post-Accident Toxicological Testing:**

FRA post-accident toxicology testing of the H70211 Locomotive Engineer’s blood and urine were positive for ethanol (0.115 grams per deciliter [gm/dL] and 0.113 gm/dL, respectively). The Locomotive Engineer’s blood and urine were positive for marijuana metabolites (6.3 nano-grams per milliliter [ng/mL] and 32.6 ng/mL, respectively). Approximately 6 hours had elapsed between the time of the accident and the collection of the Locomotive Engineer’s blood and urine specimens.

FRA post-accident toxicology testing of the H70211 Conductor’s FRA post-accident blood alcohol and urine drug testing were negative.

## **Post-Accident Actions by CSX:**

Since the accident CSX Transportation has issued additional and more thorough instructions through a CSX System Bulletin addressing Restricted Mode and its importance. CSX now instructs their employees before departing and after completing the train movements in “Restricted Mode”, the locomotive consist must be updated in the PTC system and returned to PTC “Active Mode”. Additionally, CSX train crews are now required to conduct a safety briefing when initiating any operating mode other than PTC “Active Mode”.

## **Probable Cause**

The Brotherhood of Locomotive Engineers and Trainmen concludes that the probable cause of the August 12, 2019 collision near Carey, Ohio was the result of the Locomotive Engineer of the H70211 operating while in “Restricted Mode” after switching moves were completed. As a result of the locomotive remaining in “Restricted Mode”, the PTC System did not recognize the signal displaying a Stop indication at CP Springs which defeated the technology and resulted in the collision with train W31411.

## **Proposed Recommendations**

### **To the Federal Railroad Administration (“FRA”)**

1. Develop and implement a nationwide programming change to the PTC systems that will allow PTC systems to continue to recognize the status of signals and switches while train is operating in “Restricted Mode”.

### **To CSX Transportation (“CSX”)**

1. Develop and implement additional PTC training for all employees to accommodate the new requirements.

## CERTIFICATE OF SERVICE

*I certify that on August 12, 2020 I have electronically served upon Mr. Ruben Payan (payanr@ntsb.gov), Investigator in Charge, National Transportation Safety Board, a complete and accurate copy of these proposed findings regarding the August 12, 2019, side-swiping collision and derailment of CSXT trains H70211 and W31411 near Carey, Ohio (NTSB Docket No. RRD19FR010). An electronic copy of same was also forwarded to the individuals listed below in this certificate of service, as required by 49 CFR § 831.14(a) (Proposed Findings).*

Mr. Ruben Payan  
Investigator-in-Charge, RRD-19-FR-010  
National Transportation Safety Board  
490 L'Enfant Plaza, SW  
Washington, DC 20594  
Email: [REDACTED]

Jordan Gibson, FRA  
Federal Railroad Administration  
Email: [REDACTED]

Steve Ammons, CSX  
System Road Foreman of Engines  
Email: [REDACTED]

Jerry Gibson, SMART-TD  
SMART-TD Safety Team  
Email: [REDACTED]

Kurt Mullins, BRS  
Brotherhood of Railroad Signalmen  
Email: [REDACTED]

Sincerely yours,

[REDACTED]

Stephen J. Bruno  
National Secretary-Treasurer  
Safety Task Force National Chairmen  
Brotherhood of Locomotive Engineers & Trainmen  
7061 East Pleasant Valley Road  
Independence, OH 44131



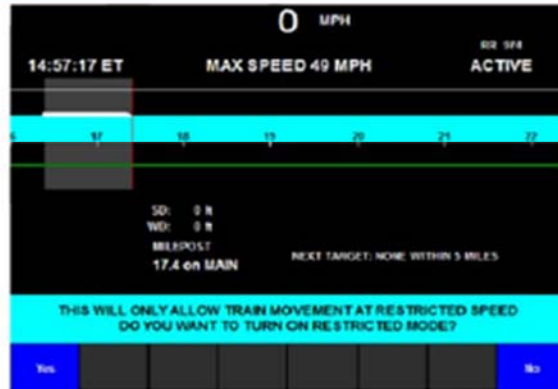
## Appendix A

AUTHORIZED SPEED - REFER TO SPEED TABLES		MILE POST	STATION	TRACK DIAGRAM		AUTH FOR MOVE	NOTES
				WEST			
SINGLE			4.9			TC	
50		CD 54.8	EE HARPSTER			CP	
			2.6		SSDG 13,489 FT SP	TC	
		CD 57.4	WE HARPSTER			CP	
		CD 58.9	4.8	DD		TC	
		CD 62.2	UPPER SANDUSKY			CP	
			1.5		SSDG 7,111 FT SP	TC	
50		CD 63.7	SA CABIN	CFE . . . . .		CP	
40		CD 63.8					
50						TC	
		68.0 69.0	7.4			TC	
1	2	50	50	CD 71.1	CRAWFORD	1 2	CP
			2.4		SSDG 10,587 FT SP	TC	
		CD 73.5	CAREY			CP	
			1.0			TC	
		CD 74.5	ONION			CP	
			2.0	1 2		TC	
50	50	CD 76.5	SPRINGS			CP	
SINGLE		50	CD 77.6	7.1	DD	TC	
1	2	50	50	CD 83.6	LOUDON	1 2	CP
			2.4	1 2		TC	
		CD 86.0	EE B&O CENTER SIDING			CP	
			1.4	CD 86.1 WEST SETOFF 100 CARS	SSDG 3,600 FT SP  C&O YD	TC	
50	50	CD 87.4	WE B&O CENTER SIDING	1 2		CP	
					FOSTORIA SD		

**90.6 MILES END OF MAIN TRACK HIGH STREET TO WE B&O CENTER SIDING**

## Appendix B

### Restricted Mode



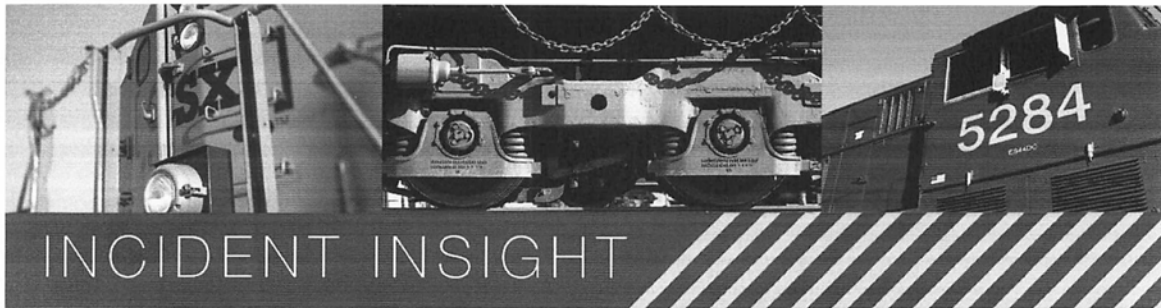
To utilize this function, the locomotive operator will select the "Restricted Mode On" soft key. When the "Restricted Mode on" key is selected, the onboard will prompt "This will only allow train movement at restricted speed, do you want to turn on restricted mode?" Once the locomotive operator selects the "yes" soft key, PTC will transition to restricted state and will display restricted as the state.

Max speed will also be displayed as "MAX SPEED RST SPEED" all movements will be held to restricted speed anytime this mode is utilized.

How tomorrow moves



## Appendix C



Transportation Department

Week of September 10, 2018

### Scenario

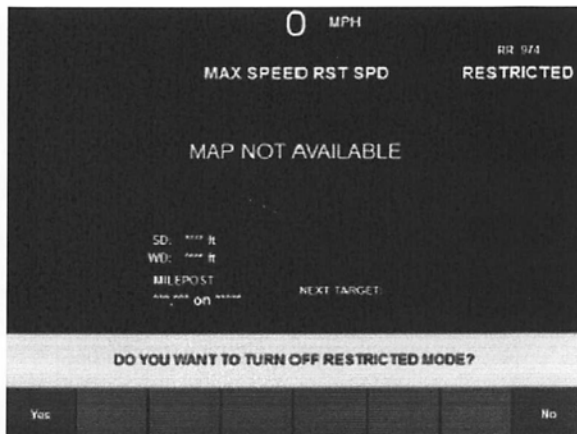
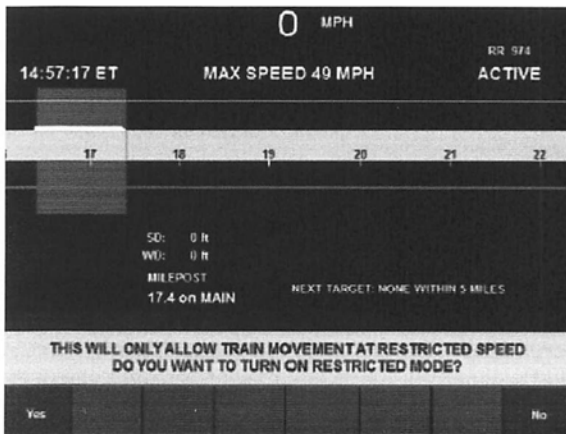
Our locomotive fleet is currently receiving a PTC system upgrade that will allow locomotive operators to select and utilize "Restricted Mode" when the train is required to perform switching moves.

### Supervisor Points of Emphasis

Once the locomotive receives the update, the locomotive operator will be able to select the "Restricted Mode" key from the main menu screen when the locomotive is stopped. When performing switching moves, Restricted Mode must be utilized instead of performing the PTC cut out function that we have previously used. If the locomotive has not received the upgrade, there will not be a Restricted Mode soft key available, therefore the PTC cut out function must be utilized. Remember in order to turn Restricted Mode on or off the train must be stopped. Once Restricted Mode is turned on, all movements will be held to restricted speed.

For more detailed information on the procedures related to "Restricted Mode" please refer to System PTC Bulletin 201 that was effective 1300 hours, August 15, 2018.

### Restricted Mode



SAFETY

## Appendix D

### ITEM 14 - PICKING UP OR SETTING OFF EQUIPMENT

#### PICKING UP OR SETTING OFF EQUIPMENT

WHEN REQUIRED TO PERFORM PICKUPS, SETOFFS, OR OTHER SWITCHING ACTIVITIES INCLUDING SHOVE MOVEMENTS, TRAINS REQUIRED TO INITIALIZE AND OPERATE WITH ACTIVE PTC MUST:

1. STOP THE TRAIN/LOCOMOTIVE;
2. UTILIZE RESTRICTED MODE

THE LOCOMOTIVE OPERATOR WILL SELECT THE "RESTRICTED MODE ON" SOFT KEY. WHEN THE "RESTRICTED MODE ON" KEY IS SELECTED, THE ONBOARD WILL PROMPT "THIS WILL ONLY ALLOW TRAIN MOVEMENT AT RESTRICTED SPEED, DO YOU WANT TO CONTINUE"?

ONCE THE LOCOMOTIVE OPERATOR SELECTS THE "YES" SOFT KEY, PTC WILL TRANSITION TO RESTRICTED STATE AND WILL DISPLAY RESTRICTED AS THE STATE. MAX SPEED WILL ALSO BE DISPLAYED AS "MAX SPEED RST SPD".

ALL MOVEMENTS WILL BE HELD TO RESTRICTED SPEED ANYTIME THIS MODE IS UTILIZED.

ONCE ALL SWITCHING IS COMPLETE AND THE LOCOMOTIVE IS STOPPED, THE "RESTRICTED MODE OFF" KEY WILL THEN BE DISPLAYED.

WHEN THE "RESTRICTED MODE" KEY IS SELECTED, THE ONBOARD WILL PROMPT, "DO YOU WANT TO TURN OFF RESTRICTED MODE".

WHEN THE YES SOFT KEY IS SELECTED, THE ONBOARD WILL DISPLAY, "RESTRICTED MODE WILL NOT BE TURNED OFF UNTIL CONSIST DATA HAS BEEN MODIFIED OR ACCEPTED".

THE STATE WILL NOT TRANSITION TO DISENGAGE UNTIL THE LOCOMOTIVE OPERATOR MODIFIES AND ACCEPTS THE CONSIST OR JUST ACCEPTS THE CONSIST. ONCE THIS IS DONE, THE SYSTEM STATE WILL TRANSITION TO DISENGAGED.

AFTER COMPLETING THE SETTING OFF OR PICKING UP OF CARS OR LOCOMOTIVES ON THE LINE OF ROAD, VERIFY AND UPDATE THE FOLLOWING INFORMATION IN THE PTC SYSTEM PRIOR TO DEPARTING LOCATION.

- \* TOTAL NUMBER OF LOADED AND EMPTY CARS IN THE TRAIN
- \* TRAIN'S TONNAGE AND LENGTH
- \* EQUIPMENT RESTRICTIONS OR EQUIPMENT SPEED RESTRICTIONS
- \* AXLE COUNT
- \* OPERATIVE BRAKE COUNT