Collision of Two CSX Transportation Freight Trains
Carey, Ohio
August 12, 2019
Managing Director’s Introduction

Ruben Payan  Investigator-in-Charge
Ryan Frigo   Operating Practices
Dr. Bob Beaton  Drug and Alcohol Testing
Dr. Michelle Watters  Medical
Deven Chen  Locomotive Recorders
Gena Evans  Writer / Editor
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Safety Recommendations
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>James Anderson</td>
<td>SRC-60</td>
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<tr>
<td>Michael Anthony</td>
<td>CIO-1</td>
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<tr>
<td>Deidra Esters</td>
<td>AD-10</td>
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<tr>
<td>Carl Perkins</td>
<td>AD-10</td>
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<tr>
<td>Kelley Romeo</td>
<td>CIO-60</td>
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<td>Rahiq Syed</td>
<td>CIO-60</td>
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<tr>
<td>Brian Young</td>
<td>MS-10</td>
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Accident Overview

Ruben Payan, Investigator-in-Charge
Eastbound Train

- Originated in Ottawa, Illinois
- 2 locomotives & 110 railcars
- Positive train control (PTC) system disabled
Westbound Train

- Originated in Columbus, Ohio
- 1 locomotive, 1 distributed power unit (DPU), and 176 railcars
- PTC system operating
Postaccident Toxicology Testing

- Performed 6 hours after accident
- Positive blood alcohol (BAC): 0.115
- Positive blood and urine inactive marijuana metabolites
Safety Issues

• Train handling and performance
• CSX Transportation (CSX) random drug- and alcohol-testing program
• Inward- and outward-facing image recorders
• Railroad switching operations with PTC
Parties to the Investigation

- Federal Railroad Administration (FRA)
- CSX Transportation (CSX)
- Brotherhood of Railroad Signalmen (BRS)
- International Association of Sheet Metal, Air, Rail and Transportation Workers (SMART)
- Brotherhood of Locomotive Engineers and Trainmen (BLET)
Railroad Switching Operations in Territories with PTC

Ruben Payan, Investigator-in-Charge
Positive Train Control

- Interoperable Electronic Train Management System (I-ETMS)
- Overlay on traffic control signal system
- Enforced compliance with existing signal system
PTC Enforcement

Warning Curve

BRAKING DISTANCE

SPEED
PTC Enforcement

Warning Curve

Braking Curve

BRAKING DISTANCE
Westbound Train

- PTC functional
- PTC in Restricted Mode for switching activities
- Train movements enforced at restricted speed
- No enforcement of signal indications
Westbound Train

- Conductor remained at rear of train
- Train departed still in PTC Restricted Mode
- Train traveled about 2 miles to accident
- Train speed did not exceed 20 mph
CSX Operating Rules

• PTC Bulletin
  • Require train crews prior to departing and after completing
    switching moves to return to PTC Active Mode
  • Require safety briefing when in any operating mode other
    than PTC Active Mode

• Administrative control to mitigate risks with
  PTC in Restricted Mode
FRA Regulations

Title 49 Code of Federal Regulations (CFR) Part 236

- A PTC system is considered to be configured to prevent train-to-train collisions if trains are required to be operated at restricted speed and if the onboard PTC equipment enforces the upper limits of the railroad’s restricted speed rule
Postaccident Actions

• Interoperable Train Control Application Committee
  • Establishing a threshold based on time and/or distance to operate in Restricted Mode
  • Software changes to PTC system will prompt train engineer to continue operating in Restricted Mode

• Engineering control designed to eliminate or reduce identified hazards
Overview

- Lack of inward-facing image recorders
- NTSB Safety Recommendations R-10-1 and -2
- Used in some passenger trains
- Not widely used in freight
Westbound Train Engineer

- Set out at Carey, 37 minutes
- Departing Carey to accident, 24 minutes
- Could not recall several events leading up to the accident
- Engineer was alone in the cab for about 1 hour
Inward-facing Image Recorders

- Not required for freight locomotives
- FRA Notice of Proposed Rulemaking
  “Locomotive Image and Audio Recording Devices for Passenger Trains,” July 24, 2019
Summary

• FRA requirements for inward-facing image and audio recorders
• Railroad use of image and audio data
CSX Random Drug and Alcohol Testing

Bob Beaton, Ph.D., CPE, System Safety
Federal Mandates for Random Drug and Alcohol Testing

- US Department of Transportation (DOT) requires regulated transportation services to maintain drug- and alcohol-testing programs (49 CFR Part 40)
- FRA describes railroad drug- and alcohol-testing goals and procedures (49 CFR Part 219)
CSX Random Drug and Alcohol Testing

- CSX has testing for its territories and divisions
- Train crews are grouped into a sampling pool
- Crews of first trains at random location and time are tested
Audits of CSX Drug and Alcohol Testing

- 2016 - FRA found problems with random selection process
- 2019 - FRA found program not fully compliant or efficient
- 2020 - DOT Office of Inspector General found oversight weakness in FRA oversight
CSX Drug and Alcohol Testing for Carey Westbound Crew

- Engineer not drug tested for the decade prior to the accident, but received two alcohol tests
- Conductor drug tested three times and alcohol tested four times in same time period
- Circumstances allowing engineer to operate for extended time without drug testing need to be understood and addressed