



National Transportation Safety Board

Railroad Accident Brief

CSX Transportation Employee Fatalities at Ivy City Washington, DC

The Accident

On June 27, 2017, at 11:18 p.m. eastern daylight time, two CSX Transportation (CSX) employees (conductor and conductor trainee) were struck and killed by southbound Amtrak (National Railroad Passenger Corporation) train P175 at Amtrak milepost (MP) 134.5 in Ivy City, a small neighborhood in Northeast Washington, DC.¹ The two employees were on the track walking toward the front of their southbound train after inspecting a railcar with elevated temperature reported by a track-side detector. Their backs were to the approaching southbound Amtrak train when they were struck. At the time of the accident, the sky was clear; visibility was 10 miles, and the temperature was 64°F. Additional ambient lighting was provided by a nearby Amtrak maintenance yard. (See figure 1.)



Figure 1. Map of accident site in Washington, DC.

¹ All times in this document are eastern daylight time.

Accident Site

The accident site had four parallel tracks (CSX main track 1 and main track 2 and Amtrak main track 2 and main track 3). CSX freight train Q137 stopped while crossing over to CSX main track 2 from CSX main track 1. The head end of the train was on CSX main track 2, and the rear end of the train was on CSX main track 1.

As shown in figure 2, Amtrak main track 3 was nearest the CSX main track 2. Southbound Amtrak train P175, on Amtrak main track 3, was traveling in the same direction as the CSX freight train Q137 on CSX main track 2. The outside track, furthest from the CSX train, was Amtrak main track 2, where Amtrak train P66 was traveling north at the time the employees were struck.

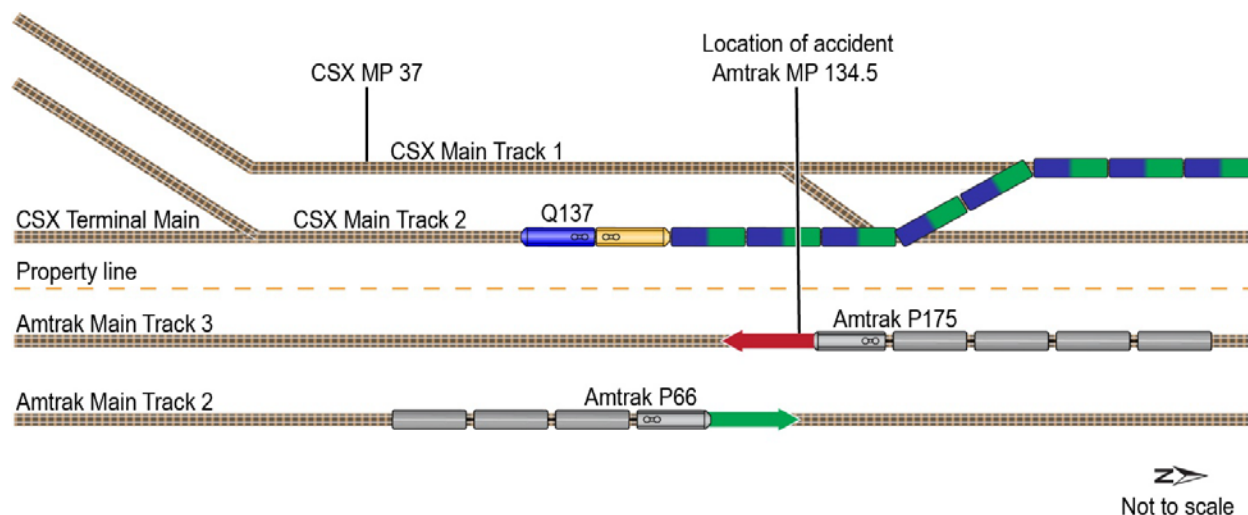


Figure 2. Diagram of accident site.

The Investigation

CSX Train Q137

The CSX train crew (engineer, conductor, and conductor trainee) arrived at the CSX yard office in Baltimore, Maryland, at 6:15 p.m. and went on duty at 6:30 p.m. The train was delivered at 8:00 p.m., and the crew departed about 20 minutes later.

At 9:37 p.m., about 4 miles from Ivy City, the CSX train dispatcher notified the crew that the 7th car in the consist had activated a track-side defective equipment detector that noted elevated railcar temperatures. The CSX dispatcher instructed the train crew to inspect the car and, if necessary, remove the car from the train at CSX MP 36.8.²

According to the engineer, the crew conducted a job briefing and planned the next activities. The engineer slowed the train to about 7 mph, and the conductor dismounted on the

² CSX MP 36.8 was the first location that had the necessary switches and track that would enable removing the car.

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south (left) side of the train while the conductor trainee dismounted on the north (right) side of the train. The engineer stopped the train at CSX MP 33.4, and the crew found and released a partially applied handbrake. Meanwhile, a local trainmaster (supervisor) was notified of the problems with the railcar and proceeded to meet the train at CSX MP 36.8.

After discussions with the CSX dispatcher, the dispatcher and crew decided to set the car out of the train on to CSX main track 2 at the crossover switches at Control Point "F Tower." The engineer and train crew planned to proceed slowly (about 10 mph) while the conductor and conductor trainee rode on the railroad cars.

During the repositioning of the train, the CSX dispatcher told the crew of an additional defect at the 12th car. Once the train was stopped, the conductor and conductor trainee walked back to the 12th car, where they found a second handbrake that was partially applied.

While the train was being inspected, the CSX dispatcher consulted with a representative from the mechanical department concerning the readouts from the defect detectors. The mechanical employee determined that the defects were not significant enough to remove the cars from the train. The cars were to be inspected at the next terminal.

At 11:09 p.m., the CSX train dispatcher notified the crew that the cars were cleared to proceed. The two conductors walked to the head end of the train. The crewmembers were not near the Amtrak tracks when inspecting the defective cars; however, when the train was repositioned, the locomotives and the first car were adjacent to Amtrak main track 3.

When the conductor and conductor trainee approached the front of the train that was stopped on the crossover track between the two CSX tracks, they moved toward Amtrak main track 3. The employees were struck by the southbound Amtrak train P175 near the trailing end of the first car of their train, about 350 feet from the locomotive.

The engineer stated that he was using the restroom when he heard a passing train sounding its horn, and he heard the sound of ballast striking the side of his locomotive. About the same time, he heard a second train in that area, along with the sound of a horn and a bell.

Moments later, a trainmaster boarded the lead locomotive of the CSX train. The trainmaster and the engineer discussed the status of the CSX train and other railroad-related topics. Minutes later, Amtrak crewmembers from the passing trains approached the CSX locomotive. The CSX trainmaster dismounted the locomotive to speak with the Amtrak employees, who advised him that an Amtrak train may have struck two people. The CSX engineer attempted to contact the two conductors via the radio but received no response. The CSX trainmaster then walked toward the rear end of the train where he found the struck conductor and conductor trainee on the tracks near the first car in the train.

During the postaccident interview, the CSX engineer told investigators that he was surprised the conductors had been walking on the south side of the CSX train along active Amtrak tracks.

Amtrak Train P175

The engineer of Amtrak train P175 went on duty in New York at 6:50 p.m., conducted a job briefing, and proceeded south from New York Penn Station toward Washington, DC. Prior to the accident, the trip had been routine. Around Amtrak MP 133.7 the engineer received an approach limited signal.³ She saw northbound Amtrak train P66 approaching her train on Amtrak main track 2 and dimmed the auxiliary lights.⁴ She then saw two people in reflective vests walking single file on the end of the crossties outside the gage of the track (between Amtrak main track 3 and CSX main track 2). She blew the horn continuously for 15 to 20 seconds. This action automatically initiated the bell to be sounded and activated the auxiliary lights. Moments later, as the train was traveling at a reduced speed of about 74 mph to comply with the restrictive signal, it struck the two CSX employees. After the impact, at 11:18 p.m., the engineer placed the train into emergency braking, announced emergency three times on the radio, and called the Amtrak dispatch center via the radio. After her train came to a complete stop, she called her conductor to come to the head end of the train. The crew inspected their train and waited for officials to arrive.

Amtrak Train P66

About 11:13 p.m., Amtrak train P66 departed Washington, DC, and operated on Amtrak main track 2. The engineer of train P66 told investigators that when his train entered the area of the stopped CSX train, he observed the reflective vests of two people about eight car lengths (about 750 feet) away. From his perspective, he believed that they were walking side-by-side inside the gage of CSX main track 2.

The engineer initiated a horn sequence for 15 to 20 seconds before the approaching Amtrak train P175 struck the two CSX employees. He stopped the train and called the Amtrak train dispatcher.

Method of Operation

At the accident site, the two main CSX tracks were designated as traffic control territory. The train movements were authorized and governed by signal indication. The signals were controlled by a CSX train dispatcher. When train movements could not be controlled specifically by the signal indications, such as in this accident, the train dispatcher could instruct a train movement by radio.

³ *Approach limited signal* is defined by the Northeast Operating Rules Advisory Committee (NORAC) Rule 281b as meaning “Proceed approaching the next signal at Limited Speed.” For passenger trains, this is a maximum speed of 45 mph.

⁴ *Auxiliary lights* are an enhanced dual headlight feature on locomotives to display a triangular effect with the headlight when illuminated. These lights are also referred to as *ditch lights* and can operate as either steady beams or pulsating beams.

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The CSX operating crew's activities and work tasks were governed by the *CSX Employee Operating Manual*, with specific instructions for the territory contained in the *CSX Baltimore Division Timetable*.⁵

The *CSX Safe Way* a separate internal guidance document, instructed employees how to safely perform their job.⁶ General Safety Rule 10, in this document, states in part, "...be alert for and keep clear of the movement of cars, locomotives, or equipment at any time, in either direction, on any track." The operating crews were not prohibited from walking either on or near the Amtrak tracks.

Equipment

CSX Train Q137

Train Q137 originated at Baltimore, Maryland, on June 27, 2017, and was destined for Chicago, Illinois. The train was 9,669 feet long and weighed 5,478 tons. The train had two locomotives, 49 loaded cars, and 9 empty cars.

The conductor and conductor trainee had found partially applied hand brakes on the two defective cars. The defect detectors were registering a "trending" elevated heat signature from those cars. The mechanical employee confirmed through the train dispatcher that the partially applied hand brakes had been found and corrected.

Amtrak Train P175

Amtrak train P175 departed New York Penn Station at 8:06 p.m. destined for Washington, DC. The train had one locomotive and seven passenger cars. About 120 passengers were on board when the accident happened.

Both trains were tested and inspected following the accident. Neither mechanical issues nor braking issues were found.

Personnel Information

The CSX engineer, conductor, and conductor trainee either attended multiple classroom training sessions or completed online training provided by the railroad. The training classes covered operating rules, hazardous materials instructions, and safety rules. The engineer, conductor, and conductor trainee attended safety classes specifically concerning job briefings on March 27, 2017; March 28, 2017; and April 25, 2017, respectively.

A review of the CSX Q137 crew's cellular phone records indicated the crew texted each other once prior to the accident sequence but did not show any other use of cellular phones. The

⁵ *CSX Employee Operating Manual*, effective April 1, 2017, and *CSX Baltimore Division Timetable*, effective July 1, 2016, are both internal CSX documents.

⁶ *CSX Safe Way*, effective July 1, 2016, is an internal CSX document separate from the *CSX Employee Operating Manual* and the *CSX Baltimore Division Timetable*.

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postaccident toxicological test results were negative for all the employees. No indications were found that the employees were fatigued.

CSX Engineer

The 34-year-old CSX engineer was hired April 11, 2004. His original engineer certification was on July 30, 2012, and was current at the time of the accident. CSX supervisors documented observations of him complying with operating and safety rules 16 times in the 12 months prior to the accident. Four of these observations were of him either properly conducting or participating in a job briefing. No deficiencies were noted during that 12-month period.

The day before the accident, the CSX crew was called to work at 10:30 a.m. for train Q398 operating from the home terminal of Cumberland, Maryland, to Baltimore. The initial tour of duty was completed about midnight, and the crew spent the night at a lodging facility. The engineer slept that night and awoke feeling rested the day of the accident. Believing that he would be called for work in the evening, he napped in the afternoon until he was called for work about 5:00 p.m. At 5:45 p.m., he met the conductor and conductor trainee at the hotel. They went to dinner, and they arrived at the yard office at 6:15 p.m. (before their 6:30 p.m. on-duty time).

CSX Conductor

The 25-year-old CSX conductor was hired September 2, 2013. His original conductor certification was on February 21, 2014, and was current at the time of the accident. CSX supervisors documented observing him complying with operating and safety rules 76 times in the 12 months prior to the accident. No deficiencies were noted during that 12-month period.

CSX Conductor Trainee

The 20-year-old CSX conductor trainee was hired March 16, 2015. His original conductor certification was on September 4, 2015, and was current at the time of the accident. CSX supervisors documented observing him complying with operating and safety rules 9 times in the 12 months prior to the accident. No deficiencies were noted during that 12-month period.

Amtrak Engineer

The Amtrak P175 engineer was hired December 11, 2012. Her original engineer certification was on December 11, 2014, and was current at the time of the accident.

The day before the accident, the Amtrak engineer worked from 2:25 p.m. to about 11:00 p.m.; then she traveled 20 minutes to her residence. She slept that night, waking up at 11:00 a.m. and feeling rested. She felt alert at the start of her shift. On the day of the accident, she departed New York Penn Station at 8:06 p.m. According to the event recorder and the engineer interview, the Amtrak engineer responded immediately and applied emergency braking upon seeing the CSX employees walking near the tracks.

Safety Issue

After completing their inspection of the train equipment, the conductor and conductor trainee, for unknown reasons, did not use the north (field) side of the CSX train during their walk back to the head end. Instead, they walked along the tracks nearest Amtrak main track 3. Moreover, rather than walking on the ballast close to the CSX train and clear of the other active tracks, they walked on the end of the crossties along Amtrak main track 3. National Transportation Safety Board (NTSB) investigators learned through interviews that many railroad workers found it easier to walk on the crossties rather than directly on the ballast and sometimes took this course of action when the track was either protected or out of service. The conductors were likely aware that the two Amtrak tracks were active. However, they may have chosen this more comfortable way for them to walk back to the head end because no trains had passed through the area for about an hour.

As the conductors walked toward the head end of the train on Amtrak main track 3, the northbound Amtrak train (operating on Amtrak main track 2) was moving toward them from the front, and the southbound Amtrak train (operating on Amtrak main track 3) was approaching them from behind. Both trains were traveling at similar speeds, and both trains had their headlights on as they entered the area where the CSX train was stopped. Each engineer observed the two conductors several hundred feet away. About the same time, they continuously sounded the locomotive horns.⁷ About 15 to 20 seconds later, the two trains reached the conductor and conductor trainee at the same time. The conductors did not move away from Amtrak main track 3 to a safe location as the two trains traveled toward them.

The NTSB investigators examined reasons why the conductors did not appear to evade the approaching trains. Both trains similarly presented explicit visual (headlights) and audio (horn and bell) cues. The conductors probably first detected the headlights from the northbound train ahead of them. Moments later they would have heard a horn and bell and likely attributed the source of these sounds to this northbound train.⁸ As the northbound train approached them, they could have visually determined that it was operating on an adjacent track and therefore was not a direct threat to their safety. Thus, they may not have felt the need to move away from Amtrak main track 3.

The conductor and conductor trainee may also have visually and audibly detected only a single train approaching them. As they walked southbound, the beam of light from the southbound locomotive, which could have illuminated a sign or object ahead of them, may have competed with or been masked by the light emanating from the northbound locomotive. As a result, they may not have perceived any visual cues from the southbound train. Additionally, given the simultaneous and similar horn and bell sounds from the two trains, the conductors may not have discerned two sources of the sounds and, consequently, concluded that the sounds originated from only one train—the one that they had detected ahead of them. As a result, it appears the conductors were unaware that a second train was approaching them from behind.

Railroad employees can often be made aware of other trains nearby and on adjacent tracks from either radio conversations or direct notification by the train dispatcher when operating on

⁷ The initiation of the locomotive horn automatically sounds the bell for the duration of the horn sound.

⁸ *Sound localization* is a person's ability to identify the location or origin of a detected sound in direction and distance. This involves the integration of multiple sensory inputs, especially visual cues.

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their own tracks. However, CSX and Amtrak operate on different radio channels, and the operating crews have very limited, if any, communications with the other railroad's train dispatcher during routine operations.

The engineer mentioned that he did not understand why the conductors had stayed on the side of the train closest to the Amtrak tracks. The conductors could have safely crossed over their train and walked well away from the live Amtrak tracks. The NTSB believes that the crew should have been prohibited from walking near the live tracks of the other railroad.

However, there are circumstances when the operating employees cannot safely walk away from the other railroad's tracks. In these situations, when the crew is fouling the other railroad's adjacent track, they would need protection.⁹ A current process is readily available to provide this protection. For example, a train dispatcher will communicate with another train dispatcher from a different railroad if a derailed train has obstructed an adjacent railroad's track. This derailment would be an emergency and has the possibility of contributing to an additional collision and derailment. The NTSB believes that this same communication could be used to protect employees that find it necessary to occupy the other railroad's active tracks. Therefore, to eliminate the hazard of unknown traffic on adjacent tracks of other railroads, the NTSB recommends that CSX and Amtrak prohibit employees from fouling adjacent tracks of another railroad unless the employees are provided protection from trains and/or equipment on the adjacent tracks by means of communication between the two railroads.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the accident was the CSX Transportation train Q137 crew's decision to walk near an active track without protection. Contributing to the accident was their focus on northbound Amtrak train P66 and their failure to realize Amtrak train P175 was approaching them from behind.

Recommendation

As a result of its investigation, the National Transportation Safety Board makes the following new safety recommendation:

To CSX Transportation and the National Railroad Passenger Corporation:

Prohibit employees from fouling adjacent tracks of another railroad unless the employees are provided protection from trains and/or equipment on the adjacent tracks by means of communication between the two railroads. (R-19-006)

⁹ According to Title 49 *Code of Federal Regulations (CFR)* 220.5 Definitions: *Fouling a track* means the placement of an individual in such proximity to a track that the individual could be struck by a moving train or other on-track equipment, or in any case is within 4 feet of the nearest rail.

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For more details about this accident, visit the [NTSB investigations page](#), and search for NTSB accident identification number **DCA17MR010**.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

ROBERT L. SUMWALT, III
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Member

Adopted: March 25, 2019

The NTSB has authority to investigate and establish the facts, circumstances, and cause or probable cause of a railroad accident in which there is a fatality or substantial property damage. (*49 United States Code* Section 1131(a)(1)(C) – *General authority*).

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties . . . and are not conducted for the purpose of determining the rights or liabilities of any person.” Title 49 *Code of Federal Regulations*, Section 831.4. Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report. *49 United States Code* Section 1154(b).
