



Issued: July 26, 2022

Railroad Investigation Report: NTSB/RIR-22/12

# CSX Transportation Remote-Control Operator Fatality

Richmond, Virginia  
October 12, 2020

## 1. Factual Information

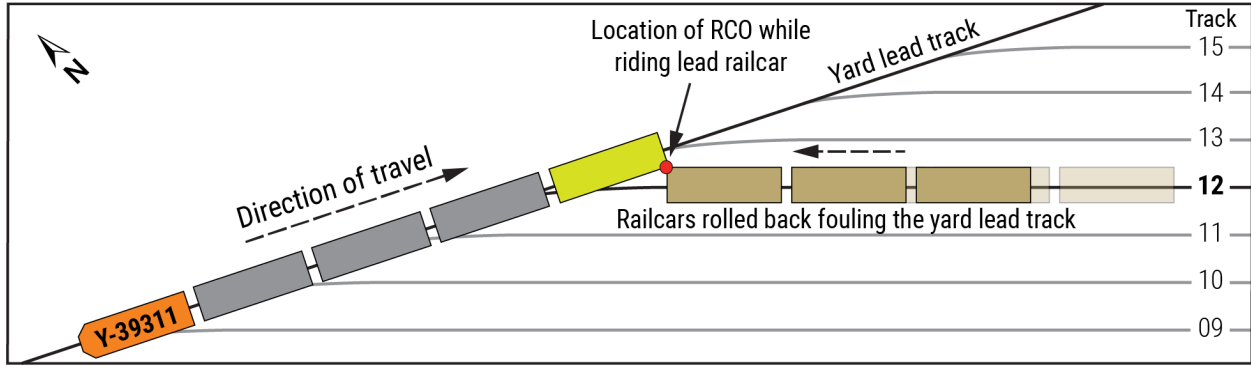
### 1.1 Accident Description

On October 12, 2020, about 2:17 a.m. local time, the remote-control operator (RCO) of CSX Transportation (CSX) train Y-39311 was killed in the Acca Rail Yard in Richmond, Virginia.<sup>1</sup> The RCO was riding on the right side of the lead railcar during a shoving movement when the train he was riding struck a set of three railcars that had rolled back from track 12 fouling the yard lead track.<sup>2</sup> (See figure 1.) At the time of the accident, the sky was dark, but the location was illuminated with commercial light-emitting diode lights mounted on poles, there was light-to-moderate rainfall, and the temperature was 65°F.

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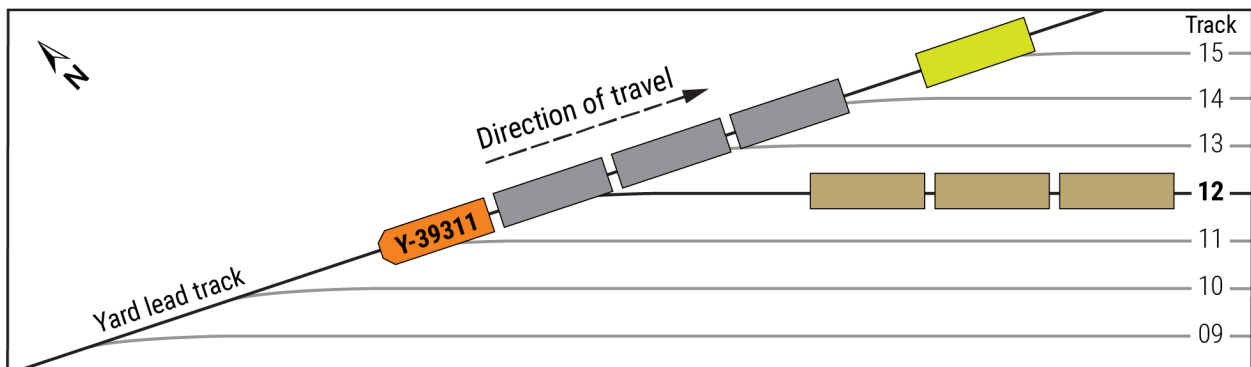
<sup>1</sup> (a) Visit [ntsb.gov](https://www.ntsb.gov) to find additional information in the [public docket](#) for this NTSB investigation (case number RRD21LR001). Use the [CAROL Query](#) to search safety recommendations and investigations. (b) All times in this report are in local time unless otherwise noted.

<sup>2</sup> (a) A *shoving movement* is the process of pushing railcars or pushing a train from the rear with a locomotive. (b) *Fouling* a track means the placement of an individual or an item of equipment in such proximity to a track that the individual or equipment could be struck by a moving train or on-track equipment, or in any case, is within 4 feet of the field side of the near running rail as defined in Title 49 *Code of Federal Regulations* 214.7.



**Figure 1.** Overhead illustration of the accident location.

The RCO was working alone at the time of the accident and operating train Y-39311, which consisted of one locomotive and 18 railcars.<sup>3</sup> After the RCO finished kicking three railcars onto track 12, he operated the train southeast on the yard lead track to pick up a railcar he had dropped off past the switch for track 14.<sup>4</sup> Figure 2 shows train Y-39311's movement to pick up the railcar past track 14, and the approximate position of the three railcars after being kicked onto track 12.



**Figure 2.** Train Y-39311's movement and the position of the three railcars on track 12.

After picking up the railcar past track 14, the RCO operated northwest, past the switch for track 12. The RCO then reversed movement and began operating southeast at a speed of about 4 mph on the yard lead track, intending to drop off the additional railcar on track 12. The RCO had not lined the switch for track 12, as the job required, after kicking the three railcars onto the track, and the three railcars had rolled back and fouled the yard lead track. As the RCO operated train Y-39311 southeast toward track

<sup>3</sup> The RCO and remote-control operations are discussed in section 1.2.

<sup>4</sup> When railcars are *kicked*, they are uncoupled from the switching locomotive while in motion, allowed to roll freely, and are expected to couple with the other railcars upon impact with the new train.

12, there was no longer adequate clearance, and the right (south) side of the lead railcar that the RCO was riding struck the corner of a railcar fouling the track.<sup>5</sup>

About 2:24 a.m., the yardmaster attempted to reach the RCO using his radio, but the yardmaster's attempts were unsuccessful. The trainmaster overheard the unsuccessful radio attempts and told the yardmaster he would drive to the area where the RCO had been working to check on him. Once the trainmaster arrived, he discovered the RCO fatally injured on track 12 and radioed the yardmaster to call 911. The yardmaster contacted 911 and stopped all train operations in the yard. Police, and fire and rescue personnel responded to the scene.

## 1.2 Before the Accident

The switching operation was usually assigned to a two-person crew, but the crew that was initially assigned was not available to work on the night of the accident.<sup>6</sup> The CSX crew calling center called the RCO to fill the assignment, and the RCO reported to Acca Rail Yard for duty on time, about 10:30 p.m.<sup>7</sup> The RCO's assignment was to build the next outbound train. When he reported for duty, he received a job briefing from the manager of train operations and later from the yardmaster. On this assignment, the RCO used a remote-controlled device to control the train.<sup>8</sup>

The RCO encountered problems while setting up the remote-controlled locomotive (RCL). He radioed the yardmaster to contact the RCL service desk to resolve the issue, delaying the start of the assignment about 1 hour.

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<sup>5</sup> The RCO was operating train Y-39311 in accordance with CSX's July 1, 2019, Operating Rule 300.4 which states that such movements are made at a speed which will permit stopping within one half the range of vision, short of a train, engine, railcar, personnel, or equipment fouling the track, stop signal, mechanical derail, or switch lined improperly, and at a maximum speed of 10 mph.

<sup>6</sup> (a) *Switching* is moving railcars from one track to another track or to different positions on the same track. It includes the moving of railcars in the makeup and breakup of trains; moving railcars on industrial switching tracks or interchange tracks, and the general movement of railcars within terminals and junctions. (b) One crewmember was on leave and the other crewmember was not available as it was his regularly scheduled day off.

<sup>7</sup> The CSX crew calling center is responsible for calling employees who were not scheduled to work to request they report for duty.

<sup>8</sup> At the time of the accident, the RCO was wearing a backpack across his chest. This remote-control backpack device is a comprehensive locomotive-control system that enables operators to control the locomotive by a wireless remote control, while either riding the train or operating from the ground.

### 1.3 Track and Equipment

CSX maintained the track at the accident location to the Federal Railroad Administration's (FRA) track safety standards for Class 3 track outlined in Title 49 *Code of Federal Regulations* Part 213.<sup>9</sup> On October 12, 2020, the FRA performed a postaccident walking inspection of the track in the area of the accident and found its condition to meet FRA's track safety standards.

On October 13, 2020, National Transportation Safety Board (NTSB) investigators conducted a reenactment to observe railcar movement using the same pre-accident switching sequence, RCL, and railcars as the RCO. Investigators observed that, after kicking the three railcars onto track 12, they slowly rolled back on their own until they reached switch 12 on the yard lead track. During interviews, the CSX trainmaster, yardmaster, and several RCOs stated that they were aware that tracks 11-14 had occasional rollbacks due to a hump in the area caused by a grade issue, and that rollbacks occurred most frequently on track 12. The track 12 grade was described as dipping down a little, humping back up (the hump was about 800 feet away from the switch), and then dropping back down again. If railcars did not clear the hump, sometimes they could roll back onto the yard lead track, and in some instances, sideswipe the railcars on that track. Before the accident, CSX regraded the area to resolve the issue; however, a slight grade remained on tracks 11-14.

On October 12, 2020, the FRA also performed a postaccident inspection of CSX locomotive 8418 and the railcars that were kicked onto track 12. The locomotive and railcars were current on all tests and inspections, with no exceptions identified during the postaccident inspection.

### 1.4 Crew Mitigation of Rollbacks

During interviews, CSX employees discussed work practices the crews had developed and implemented themselves to determine when to kick railcars versus couple and shove, considering variables such as working at night versus during the day, or during inclement weather. Some employees stated that they would not have kicked the railcars onto track 12 on the night of the accident because of the weather conditions. Instead, they may have opted to couple and shove the railcars; that is, ride the train from the yard lead track onto track 12 and couple with the standing railcars to ensure they were positioned properly and unlikely to roll back.

Crew size was also a consideration in mitigating rollbacks. With a one-person crew, the crewmember would be riding the train and positioned farther away from where the trains were coupling, and consequently might have to reposition the train to

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<sup>9</sup> FRA's track safety standards do not identify tracks that have humps or are prone to rollbacks as noncompliant.

get a better angle to observe the coupling. With a two-person crew, one crewmember would be stationed on the ground. That crewmember could listen to the sound of the coupling or walk down the track to visually verify that a successful coupling had occurred and that no railcars were rolling back.

## **1.5 Personnel Information**

### **1.5.1 Conductor Qualifications**

CSX records show that the RCO was hired as a conductor on July 20, 2008. He later became qualified as a certified locomotive engineer in 2015. The RCO had previous experience working the assignment alone, and CSX management believed that he had the necessary experience to perform switching operations alone safely and efficiently. Further, CSX officials were confident that the RCO was aware the accident location was prone to rollbacks.

### **1.5.2 Performance**

A review of the RCO's disciplinary history indicated that he had been disciplined once for improperly dismounting moving equipment on September 14, 2019, and once for failing to properly line a switch on December 11, 2008.

## **1.6 Toxicology and Autopsy**

Postaccident toxicology testing for alcohol and other drugs was performed on the RCO in accordance with FRA regulations.<sup>10</sup> The results were negative for all tested-for substances. Postaccident toxicology testing by the Federal Aviation Administration Forensic Sciences Laboratory was negative for ethanol and other tested-for substances.<sup>11</sup>

The autopsy report from the Virginia Department of Health Office of the Chief Medical Examiner determined the cause of death to be blunt force trauma, and the manner of death was accident.

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<sup>10</sup> As part of postaccident toxicology testing required by the FRA, the conductor's blood was tested for sedating antihistamines, amphetamines, barbiturates, benzodiazepines, cannabinoids, cocaine, MDMA/MDA, methamphetamine, methadone, opiates/opioids, phencyclidine, tramadol, and ethyl alcohol; no urine was available.

<sup>11</sup> The Federal Aviation Administration Forensic Sciences Laboratory has the capability to test for more than 1,300 substances including toxins, common prescriptions, and over-the-counter medications, as well as illicit drugs.

## 1.7 Postaccident Actions

Immediately following the accident, CSX revised its operating procedures and now requires railcars to be coupled and shoved (and no longer kicked) onto tracks 11-14 in the north end of Acca Rail Yard in Richmond, Virginia.<sup>12</sup> CSX conducted safety briefings emphasizing certain CSX Operating and Safety rules about the proper alignment of switches and securing stationary railcars. Further, CSX required its management to increase efficiency testing pertaining to rules for switching operations.

## 2. Analysis

On the night of the accident, the RCO was working alone on an assignment that was usually performed by a two-person crew. The RCO had experience working that assignment alone, and CSX management was confident that he had the necessary experience to perform switching operations alone safely and efficiently.

Two events led to the collision between the train the RCO was riding and the railcars that had earlier been kicked onto track 12. First, the railcars kicked onto track 12 did not clear the existing hump caused by a grade issue in the area. Subsequently, these railcars rolled back to the yard lead track undetected by the RCO. Second, the RCO mistakenly did not line the switch for track 12 after picking up railcars that were left on the lead track and the switch remained lined for the yard lead track. As a result, there was no longer adequate clearance for the train to pass track 12 because the three railcars had rolled back and fouled the yard lead track. CSX officials were aware of the existing hump on tracks 11-14 and regraded the area to resolve the issue before the accident; however, regrading had not fully eliminated the hazard.

Crews must consider variables such as track conditions and weather when determining what procedures to employ (couple and shove rather than kick) when working assignments. In this accident, working at night and during inclement weather reduced the RCO's ability to see the kicked railcars, decreasing the likelihood he would detect the railcars rolling back from his position. Further, because the RCO was working alone and riding the railcars while operating the train, he was often at a less strategic position to observe the movement of the railcars and watch for possible rollbacks than a crewmember stationed on the ground.

While not formalized by CSX management at the time of the accident, CSX employees had developed and implemented work practices themselves to help determine when to couple and shove railcars versus kick. During interviews with NTSB investigators, some employees stated that they would not have made the decision to kick the railcars onto track 12 on the night of the accident. NTSB was unable to

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<sup>12</sup> CSX Richmond terminal subdivision bulletin 101, dated October 16, 2020.

determine why the RCO continued to kick railcars onto the tracks rather than couple and shove the railcars.

After the accident, CSX revised its switching procedures and now requires that employees only couple and shove railcars onto tracks 11-14. CSX believes that this change to procedures will prevent railcars from rolling back on these tracks. Further, CSX held safety briefings and required management to increase efficiency testing for switching operations.

### **3. Probable Cause**

The National Transportation Safety Board determines that the probable cause of the October 12, 2020, CSX Transportation remote-control operator fatality was CSX Transportation not fully mitigating known risks of railcar rollbacks after their initial mitigation attempt was unsuccessful. Contributing to the collision was the remote-control operator riding on the lead railcar while he operated his train into railcars he had previously kicked on track 12 that had subsequently rolled back, fouling his train's path.

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For more detailed background information on this report, visit the NTSB investigations website and search for NTSB accident ID RRD21LR001. Recent publications are available in their entirety on the NTSB website. Other information about available publications also may be obtained from the website or by contacting—

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