



# National Transportation Safety Board

## Railroad Accident Brief

### The Belt Railway Company of Chicago Employee Fatality

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<b>Accident No.:</b>	DCA11FR005
<b>Location:</b>	Bedford Park, Illinois
<b>Date:</b>	July 25, 2011
<b>Time:</b>	12:33 a.m., central daylight time
<b>Railroad:</b>	The Belt Railway Company of Chicago
<b>Property Damage:</b>	\$120
<b>Injuries:</b>	0
<b>Fatalities:</b>	1
<b>Type of accident:</b>	Employee Fatality

On Monday, July 25, 2011, about 12:33 a.m., central daylight time, a Belt Railway Company of Chicago (BRC) conductor was killed while coupling cars in a hump classification yard track in Bedford Park, Illinois. The accident occurred in the BRC Clearing Yard, West Classification Yard (WCLS) track 16. The conductor was found in the gage of the track between the 17th and 18th west railcars. The drawbars on these two railcars were found to be crossed. The conductor appeared to have been pinched between the knuckle of the stationary car that was coupled to the train and the drawbar carrier of the free-rolling car that he was attempting to couple. At the time of the accident, the weather was mostly cloudy; the temperature was 76°F.

### The Accident

On July 24, 2011, at 3:59 p.m., two switchmen, a conductor, and a helper began their 8-hour work shift. The trainmaster told NTSB investigators that as the shift progressed, he informed the crew that they had to work a 12-hour shift. The crew, who had worked during the evening and night hours, had positioned railcars in the yard as instructed by the yardmaster.

At the time of the accident, the crew was working on job assignment 15:59WY, which involved assembling a train using railcars on three adjacent tracks in the classification yard. The crew was working with a remote control locomotive (RCL), BRC unit 534. Each crewmember had a hand-operated remote control unit (RCU).

Shortly before the accident, while the crew was on a work break, the yardmaster gave the crew instructions to couple the cars on the WCLS tracks 15, 16, and 17. The crew planned to couple the railcars on each track successively, then they would pull the assembled train out of the classification yard.

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On July 25, 2011, about 12:19 a.m., the conductor requested: (1) a block for WCLS tracks 15, 16, and 17, and (2) the east end of the classification yard to be placed out of service.<sup>1</sup> These two requests were granted immediately. After the BRC helper moved the locomotive onto the west end of track 16, he coupled the locomotive to the first westward car on the track. The railcars in the classification tracks had been rolled into place from the yard hump. Under normal circumstances, the railcar couplers were opened by personnel at the yard hump crest. When a railcar rolls from the hump onto a classification track, the rolling railcar “bumps” into the first standing railcar already in the classification track. As designed, when the two railcars collide, the couplers on the colliding ends interlock. However, the coupling of railcars does not happen every time due to a variety of conditions including, but not limited to coupler and drawbar misalignment, closed coupler knuckles, or track configuration. When couplers fail to interlock, a switchman must take corrective action that may include manually aligning the coupler to couple the cars.

After coupling to the first railcar on track 16, the helper and conductor dismounted the locomotive. The conductor went to the north side of the railcars, and the helper moved to the south side; they removed the skates from their respective sides of the track.<sup>2</sup> As they faced one another across the coupling between the locomotive and the first railcar, the helper transferred control of the RCL to the conductor. The helper then returned to the locomotive cab, while the conductor checked the couplings.

To check the couplings, the conductor used his RCU to move the RCL locomotive and the coupled railcars to the west. As the lead-end locomotive pulled away, the uncoupled railcars remained in place. This action created a gap between the lead-end locomotive and the first uncoupled railcar. The conductor walked along the railcars to locate the gap. The investigation found that prior to the accident, the conductor had made three westward RCL moves on track 16. The three moves, which totaled about 270 feet, and were completed in about 4 minutes. Because the conductor was out of sight from his crew, supervisors, and the yard surveillance cameras, whether the moves were for three different couplings or for the same coupling is unknown.

About 12:33 a.m., the “man-down alarm” of the conductor’s RCU sounded.<sup>3</sup> Within seconds, the hump conductor radioed the conductor; however, no response was received. After 1 minute, the hump conductor radioed the helper and told him to find the conductor. Two minutes after the alarm, the helper radioed the hump conductor to report that he saw the conductor’s work lamp, which was not moving. The hump conductor called 911 for emergency assistance. The helper radioed the message: “man down, man down, emergency, emergency,” at 3 minutes, 20 seconds after the initial alarm.

The conductor was found on the ground between the 17th railcar (CSXT box car 140182), which was the last railcar coupled to the lead end of the train, and the 18th railcar (TTUX auto carrier 891054), which was a freestanding railcar. The NTSB found the couplers

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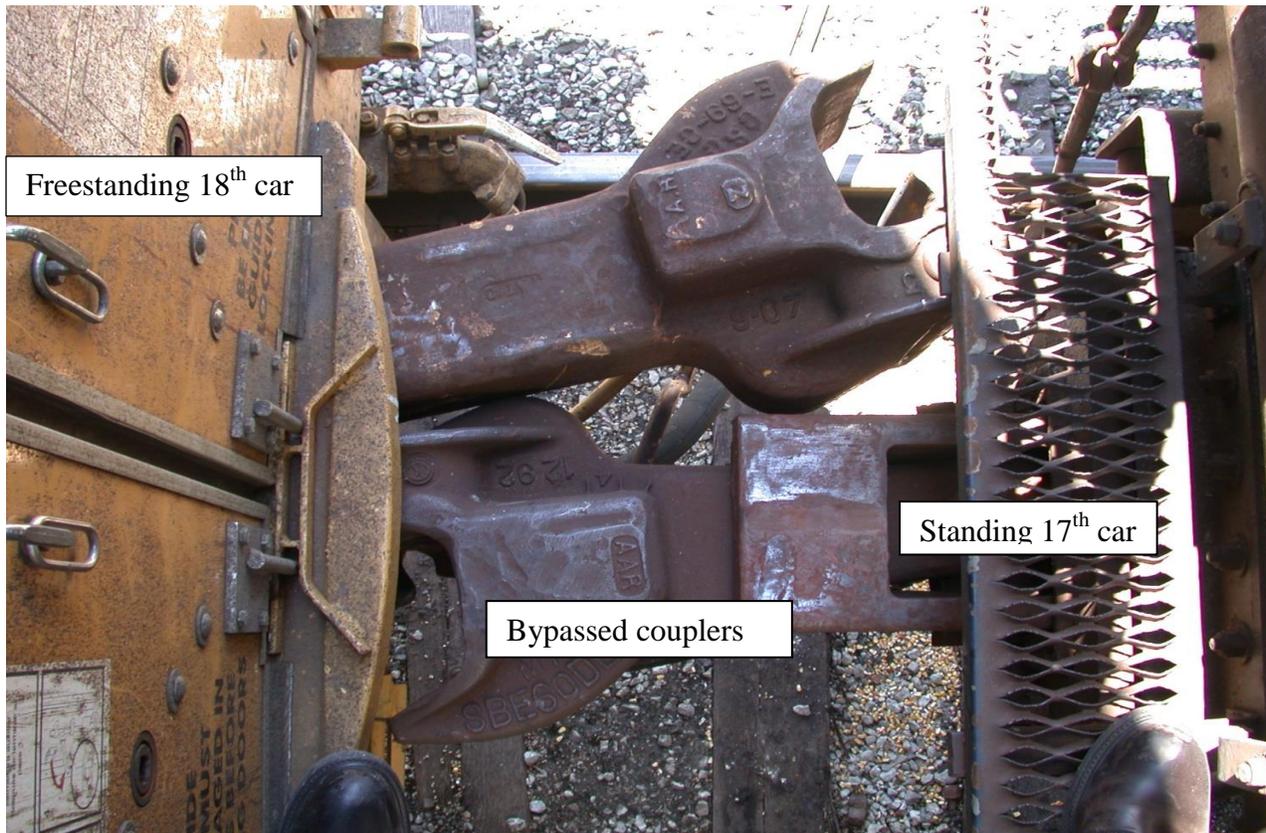
<sup>1</sup> This *block* would allow the crew to work on the tracks without interference.

<sup>2</sup> A *skate* is steel device on the ball of the rail, near the end of the track clearance point, that stops rolling cars from exiting the track.

<sup>3</sup> An audio warning that is transmitted by the RCU to alert others that the operator may be in danger.

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were by-passed or crossed between these two cars (see figure 1) and noted that the handbrake of the 18th railcar had not been set.



**Figure 1.** By-passed couplers on the 17th and 18th cars.

### Coupling Operations

The conductor used gravity to couple cars together as the railcars rolled from the hump. As the locomotive and the coupled cars moved, a gap would open at the first car that was not coupled to the rest of the train. The conductor would go to the side of that car, and, if necessary, open its knuckle as it rolled down the grade to couple with the train. However, if the drawbars were not properly aligned, the conductor had to step into the gap to physically move the coupler drawbars into position and would open the knuckle.

The BRC safety rules 31.14.1 and 31.14.2 mandate, in hump bowl tracks and other yard tracks where cars are likely to roll together, cars must be separated at least 100 feet with sufficient handbrakes applied, but not less than one handbrake, on the unattached cars to prevent movement before going between cars to perform work on cars. In addition, the controlling Remote Control Operator (RCO) must apply a “three-point protection,” which means the RCO must apply the locomotive air brakes, center the reverser, and apply the train air brakes, when necessary. These actions required 2 to 4 minutes per coupling. Recorded data indicated that the conductor did not apply three-point protection, and equipment inspection showed that the handbrakes were not set on the free rolling car.

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### Efficiency Testing and Training

The BRC records showed that the conductor began his training on October 18, 2008. He completed the final week of his training program on November 22, 2008, passed an RCO triennial skills examination on October 26, 2010, and was qualified and certified to be a RCO on November 8, 2010.<sup>4</sup> He passed an annual performance monitoring assessment on April 1, 2011.

The BRC records showed that the helper began his training on May 2, 2011, and he completed the final week of his training program on June 20, 2011. He was evaluated and certified on his RCO skills on May 16, 2011; he was qualified as an RCO on June 9, 2011.

Operational testing, which is commonly known as efficiency testing, records showed that the BRC did not test the conductor regarding the following two critical rules:

- SR 31.14.1, *Coupling / Uncoupling Cars*
- SR 31.14.2, *Going Between Cars*

### Postaccident Actions

Within 2 months of the fatal accident, the BRC General Manager and a Federal Railroad Administration (FRA) Operating Practice Inspector observed instances in which BRC Safety Rule 31.14.1, *Coupling / Uncoupling Cars*, was violated by switchmen. As a result of these observations, the BRC identified General Code of Operating Rules (GCOR) 7.4, *Precautions for Coupling or Moving Cars or Engines* and 7.6, *Securing Cars or Engines*, and BRC 31.14.1 as critical rules which, if violated, escalated the discipline policy by one step.<sup>5</sup> In October 2011, BRC modified its computer program that tracks efficiency testing so every employee is tested at least every 365 days on critical rules.

On October 11, 2011, the FRA published a safety advisory in the *Federal Register* to encourage railroads to remind its employees about the dangers of going between standing railroad equipment.<sup>6</sup> In the advisory, the FRA made five recommendations that encouraged the railroad industry to take action to ensure the safety of railroad employees:

1. Review current operating and safety rules that specifically address both remote control locomotive and conventional switching operations that require employees to go between rolling equipment, and determine whether those rules provide adequate protection to employees, or need to be updated or revised.

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<sup>4</sup> This evaluation is valid for 3 years from the date of completion.

<sup>5</sup> The BRC defines critical rules as groups of rules, if violated, could result in severe personal injuries.

<sup>6</sup> *Federal Register* 76, no. 1996 (October 11, 2011): 62894.

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2. Develop, implement, and monitor sound communication protocols that require employees on multi-person switch crews to notify their fellow crewmembers when the need arises to enter between two pieces of rolling equipment—regardless of whether the employee is the primary RCO or working on a conventional crew.
3. Review the Switching Operations Fatality Analysis (SOFA) Working Group safety recommendation 1, *Adjusting Knuckles, Adjusting Drawbars, and Installing End of Train Devices*, reproduced above, and communicate its procedures implementing that recommendation to employees working in yards or other locations where the possibility of entering between rolling equipment exists.
4. Convey to employees that their own personal safety is their responsibility and that railroad managers support and encourage those employees that make safety their number one priority, regardless of their immediate assignment.
5. Convey to employees that they should encourage fellow employees to perform their tasks safely and in compliance with established railroad rules and procedures.

In response, the BRC conducted a “safety blitz” to comply with the FRA recommendations.

## Probable Cause

The National Transportation Safety Board determines that the probable cause of the accident was the failure of the conductor to apply the necessary protections before he stepped between the cars to adjust the drawbars. Contributing to the cause of the accident was the BRC’s lack of an effective efficiency testing program to periodically observe and enforce its safety and operating rules for switching movements.

For more details about this accident, visit [www.nts.gov/investigations/dms.html](http://www.nts.gov/investigations/dms.html) and search for NTSB accident ID DCA11FR005.

**Adopted: [July 7, 2014]**

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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, or that involves a passenger train. (49 U.S. Code § 1131 - *General authority*)

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