



Issued: July 6, 2026

Railroad Investigation Report: RIR-26-11

BNSF Railway Raking Collision with Subsequent Derailment and Conductor Injury

Location	Denver, Colorado
Date	August 5, 2025
Accident type	Collision with derailment and serious injury
Train	H-LINDEN1-02A: 2 locomotives, 103 cars, 5823 feet, 8337 tons
Persons involved	Engineer, student engineer, and conductor
Track	Yard, non-signalized
Hazardous materials	None involved
Fatalities	0
Injuries	1
Property damage	\$400,000

Summary

On August 5, 2025, about 12:11 a.m., a BNSF Railway (BNSF) conductor was seriously injured in a raking collision between a moving train and standing railcars at the BNSF Globeville Yard in Denver, Colorado.¹ The crew of train BNSF H-LINDEN1-02A had pulled the rear of the train into a yard track and was performing a shoving movement to place the remainder of their train into another track when the train traversed a crossover switch lined for an adjacent track and collided with standing railcars.² (See figure 1.) Three of the standing railcars and five railcars from train H-LINDEN1-02A derailed. The train's conductor was thrown from the railcar he was riding, and that car then toppled onto him as it derailed. At the time of the accident, visibility conditions were clear and dark; the weather was 68°F with no precipitation.

¹ (a) All times in this report are local. Visit [ntsb.gov](https://www.ntsb.gov) to find additional information in the [public docket](#) for this NTSB accident investigation (case number [RRD25FR022](#)), including detailed factual reports about the circumstances of the accident. (b) A *raking collision* is a collision between equipment on adjacent tracks.

² A *shoving movement* is the process of pushing railcars or a train from the rear with a locomotive. A *crossover* is a pair of switches that are used to connect two parallel tracks. Both switches of a crossover must be appropriately lined (in correspondence) for either straight movement or crossover movement.

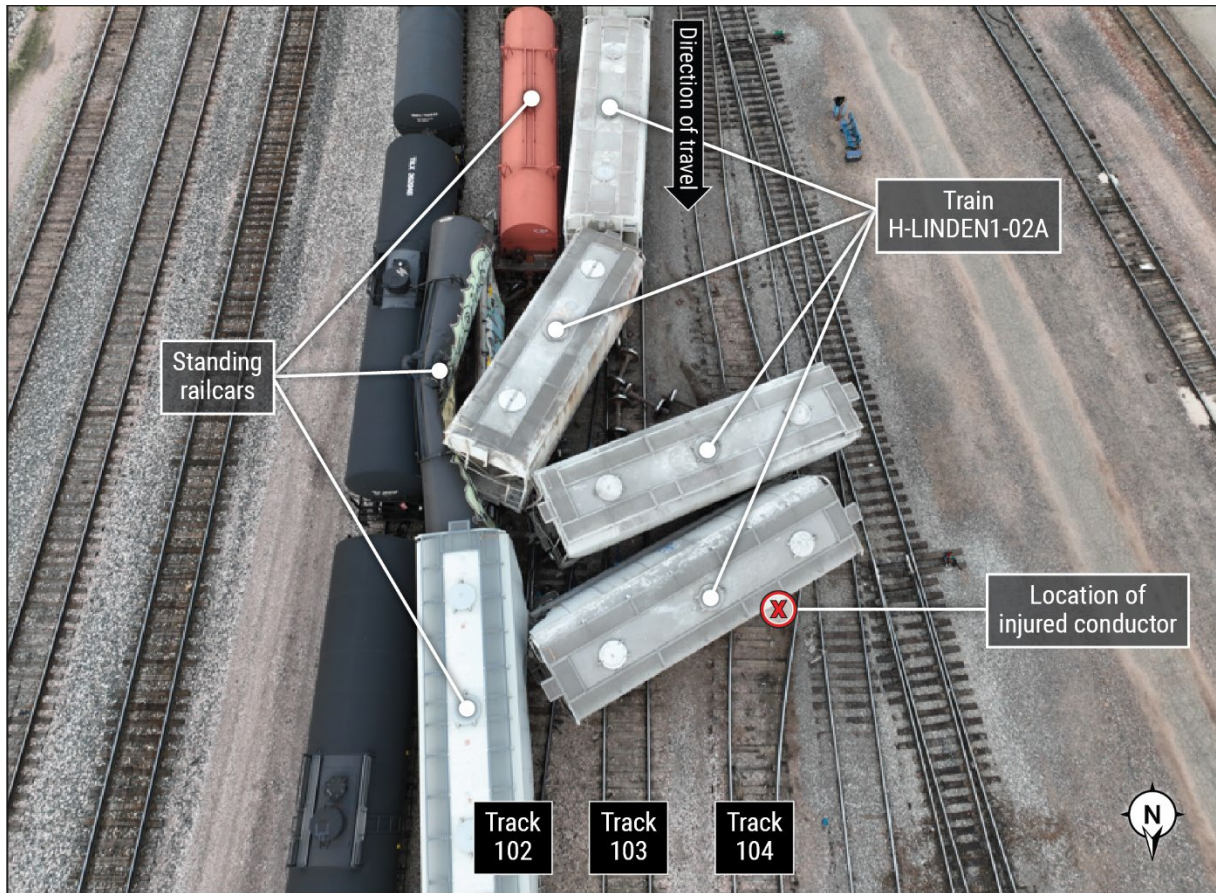


Figure 1. Aerial of accident scene.

Approximately 10 hours before the accident on August 4, 2025, a BNSF crew consisting of an engineer, student engineer, and conductor went on duty at 2:00 p.m. in McCook, Nebraska. The crew was assigned to operate a BNSF train that had been secured in a siding approximately 65 miles away and proceed with the train to its final destination in Denver, Colorado. Upon arrival in Denver, the BNSF Globeville Yardmaster instructed the crew to perform a “double over” maneuver because the train would not fit in a single track. This involved pulling a portion of the train into Track 104 from the north end of the yard and then shoving the remaining cars into Track 103 from the south end.

On scene, the National Transportation Safety Board (NTSB) conducted interviews and reviewed BNSF yard camera footage, locomotive event recorder data, and radio communication recordings. The camera footage showed that, after leaving the rear portion of the train in Track 104 and pulling the remaining cars past the switch for Track 103, the conductor lined the switch for Track 103 and then climbed onto the west side of a railcar at the leading end of the shoving movement to provide point protection. (See figure 2.) Point protection refers to having someone watching the track ahead of the leading car ensuring the safe movement of rail equipment; point protection can be

provided visually or using technology to avoid collision. Radio recordings indicate that about 12:10 a.m., the conductor instructed the engineer via handheld radio to shove the train 30 car lengths. After traveling about 163 feet (approximately three car lengths), the leading car diverged through an improperly lined crossover switch and collided with a standing cut of cars in track 102, which caused the conductor to be thrown from the equipment.

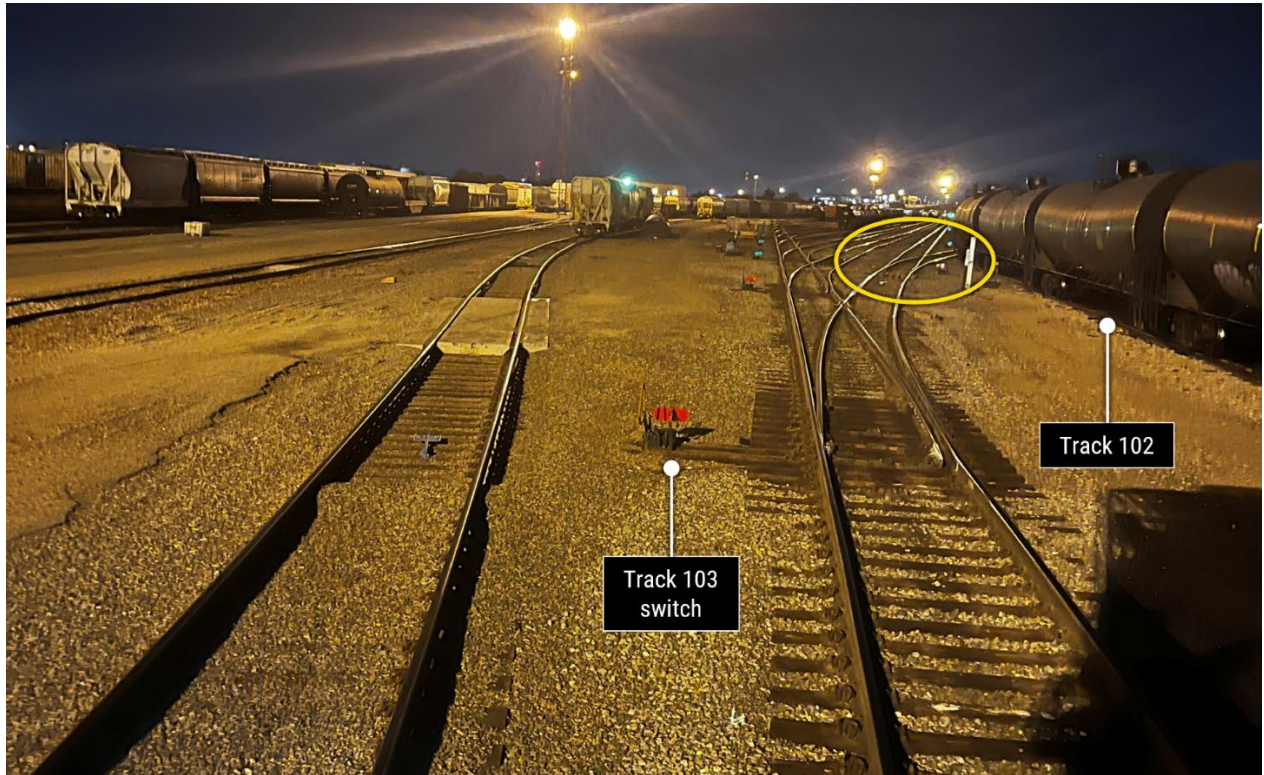


Figure 2. A nighttime reenactment from a mounted position on an exemplar railcar, looking north in the direction of the intended route, showed the south switch of the 103-102 crossover (circled) visibly lined for crossover movement into a standing cut of railcars in Track 102.

The raking collision resulted in the derailment of five cars from the moving train and three cars from the standing cut in Track 102. The car that the conductor had been riding derailed and overturned onto him, causing severe injuries to his lower-right leg. Emergency responders, including the Denver Fire Department, arrived on-scene and extricated the conductor from beneath the derailed equipment. The conductor's leg injury subsequently required a below-knee amputation.

Federal regulations and railroad operating rules require that, when making shoving movements, the employee protecting the movement is responsible for visually determining to the extent of their range of vision that the portion of the track that is to be traversed is clear, and that switches and derails are properly lined for the intended

movement.³ According to BNSF rule S-13.1.5, to make this determination, employees may use various methods to facilitate protecting a shoving movement, such as riding on a railcar, walking, using vehicles (trucks or carts), or employing technologies like cameras. In the Globeville Yard, BNSF rules prohibited riding on equipment on these yard tracks due to “close track centers.”⁴ However, in this yard, there were no signs or visible markings indicating close-track-center designations for Tracks 102 to 104 to inform employees of this condition. Additionally, BNSF rules specify that employees should ride cars or equipment only when necessary and only after determining that it can be done safely. The overhead lighting conditions, auxiliary hand-held light source (lantern), and sight distance at the accident location were examined by investigators and found to be adequate to allow for visual identification of switch points and switch targets from locations where the conductor was observed to have been standing in yard and locomotive camera video footage. (See figure 2.)

Based on review of yard camera footage and information obtained in interviews, the NTSB determined that prior to the accident, the south switch of the 103-102 crossover had been left out of correspondence and lined for crossover movement by a BNSF car inspector to provide protection.⁵ Protection is provided by denying access to tracks being worked on or next to by lining and locking switches in a way that prevents rail equipment from accessing the tracks being protected. Lining a crossover switch out of correspondence is an approved method used by mechanical employees, including car inspectors, to provide this protection. However, when the protection was no longer needed, the car inspector did not restore the crossover switch into correspondence as required by BNSF mechanical safety rule S-24.2.3.

Analysis

The immediate failure that led to the serious injury of the conductor was the practice of riding equipment (a railcar) while protecting shove movements when safer methods of point protection were available. There were several failures that led to the final condition, including the car inspector’s failure to restore both switches of the crossover into correspondence, the conductor’s failure to identify the misaligned

³ A *derail* is an appliance designed to derail rail equipment when traversed over. Derails are commonly used to prevent rail equipment from entering or exiting tracks to protect against unauthorized movement.

⁴ *Close track centers* are defined by the BNSF as tracks with centers closer than 13’10” apart.

⁵ Crossover switches in a yard may be left lined for either crossover movement or straight movement. However, both switches of a crossover must be lined in correspondence, meaning both lined for the same movement. One crossover switch lined for straight movement and the other lined for crossover movement would be considered as out of correspondence.

crossover switch in the route of the intended movement and the failure of BNSF to provide distinct visual cues to readily identify locations where restrictions on riding equipment exist.

Prior to initiating a shoving movement, 49 *Code of Federal Regulations* 218.99 requires the locomotive engineer to be briefed by the employee directing the move. The regulation states that the job briefing shall include the means of communication to be used and how point protection will be provided. The employee directing the movement is to visually determine that the track is clear and give signals or instructions necessary to control the movement. Radio recordings of the accident indicate that there was no discussion between crew members regarding the alignment of any of the switches in the intended route. While the conductor did state that he was on the equipment and gave a direction (back) and a car count, he was not required to discuss switch alignment. There is no requirement in the federal regulation or in the BNSF-modified General Code of Operating Rules for crew members to communicate the alignment of switches or any observed or anticipated risks associated with the movement prior to initiating the shove. Had this requirement existed, it may have prompted the conductor to validate the proper alignment of all switches in the intended route before calling for the initiation of the train's movement.

The NTSB determined that both the car inspector and the conductor failed to follow BNSF operating and safety rules regarding the position and use of switches. Specifically, the car inspector was required by rule to return the crossover switches to correspondence with one another after his work was completed. The conductor was required, by rule, to ensure that all switches were lined for his intended route prior to initiating movement and, for unknown reasons, failed to do so. Had an alternate method of shove protection that did not involve the conductor riding the equipment been employed, the collision and derailment may not have been prevented but the injury is not likely to have occurred.

If the train had not been diverted due to the misaligned switch, it is unknown if its continued movement into Track 103 would have caused injury to the conductor when the close clearance between his train and equipment on the adjacent track was encountered. During the investigation, investigators noted that there were no visible marking or signage identifying tracks designated as having "close track centers" (and the implied inherent risks to conductors riding on equipment traversing these tracks) at BNSF's Globeville Yard. The only designation of these tracks is found in the Powder River timetable instructions. While it remains unknown if the conductor was aware of the conditional restriction prohibiting riding equipment on Track 103, an additional visual administrative control in the form of distinct markings or signage in the field could have prompted the conductor to comply with the prohibition against riding the side of equipment in Track 103 and avoided the injury sustained.

Probable Cause

The National Transportation Safety Board determined that the probable cause of the August 5, 2025, employee injury in Denver, Colorado, was a BNSF train misrouted through a misaligned crossover switch resulting in a raking collision and derailment, which caused the conductor, who was riding on the side of the lead car in the shoving movement, to be thrown from the train. Contributing to the accident was the conductor riding on the moving train when safer methods of protecting the shoving movement were available. Also contributing to the accident was the lack of identification markers on the track to provide positive visual identification to employees as to where close clearances exist, and insufficient communication between crew members about how to manage the risks associated with operating in locations with identified close clearance conditions.

Lessons Learned

Due to the risks associated with crossovers left out of correspondence following the accident, BNSF repaired the track and placed mechanical locks on both switches of the 103-102 crossover, which prevent them from being used by car inspectors to provide protection. BNSF stated that they plan to remove this crossover completely. Discontinuation of use, or even the planned removal of this crossover, will mitigate the possibility for this crossover to be left out of correspondence, but it will not eliminate the risks employees are exposed to when riding equipment while protecting shove movements.

BNSF safety rule S-13.1.5 states, “ride cars or equipment only if necessary and if you have determined that you can do so safely.” This statement is broad and leaves the determination of necessity and safety to the employees, which is not optimal, because employees’ judgement is influenced by a multitude of factors, such as local procedural knowledge, perceived workflow expectations, memory shortcomings, and others. The NTSB previously found that employees may choose to perform tasks in a manner that is expeditious rather than what is safest. Additionally, employees may prefer riding to walking, because it takes less energy resulting in less physical fatigue.⁶ The importance of safer means for providing point protection than riding on trains cannot be understated. Railroads should actively monitor their conductors while they are providing point protection and proactively direct conductors to the safest method for protecting a shoving movement.

The NTSB released [Safety Alert 103](#) on November 15, 2025, drawing attention to the risks associated with riding equipment while protecting shoves and the 14 conductor fatalities that occurred between January 2020 and July 2025 related to this task. As outlined in the safety alert, railroads can take many actions to improve safety and reduce reliance on employee judgement, including providing alternatives to riding rail equipment, and identifying and clearly marking permanent close clearances and close track centers.

⁶ See NTSB investigation DCA16FR007, Chester, PA.

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For more detailed background information on this report, visit the [NTSB Case Analysis and Reporting Online \(CAROL\) website](#) and search for NTSB accident ID RRD25FR022. 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—

National Transportation Safety Board
Records Management Division, CIO-40
490 L’Enfant Plaza, SW
Washington, DC 20594
(800) 877-6799 or (202) 314-6551