



# Inside **THE** RAIL

From NASA's Confidential Close Call Reporting System



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## Restricted Speed

Restricted speed is one of the most important and consistent rules throughout the nation. It was established by the FRA to protect life, limb, and property during circumstances that require the utmost attention to detail and all crew members' undivided attention.

The foundation of restricted speed for all railroads is found at Code of Federal Regulations (CFR), Title 49, Part 236, Subpart G-Definitions § 236.812, dealing with speed restriction. It requires "A speed that will permit stopping within one-half the range of vision, but not exceeding 20 miles per hour." Many will read that statement and proceed at the limits of that definition, a speed of 20 miles per hour, completely overlooking the true intent of the regulation.

Restricted speed is not a posted speed that we strive to maintain. It is as crystal clear a term that can be used in a procedure. Restricted speed is based on circumstances that only those in the locomotive cab can truly apply to ensure safe operation. Is there a train ahead? Broken rail? Obstruction? The circumstances surrounding the use of restricted speed may vary, but the importance of protecting life, limb, and property never changes.

In short, restricted speed is a warning that something ahead could result in an accident. In this edition, we look at some C<sup>3</sup>RS incident reports regarding restricted speed requirements.

### Maintain Focus at All Times

Especially when operating at restricted speed, the Engineer must maintain focus to watch for obstructions and to know how long it will take to stop their train. Visibility, grade of track, weight of train, track conditions, and braking characteristics must be considered. In this case, the Engineer lost focus and struck another train.

■ *Train B went into emergency and slid into the rear of Train A. The event happened while both trains had no passengers and were on their way to their initial passenger stations. The Engineer lost focus and hadn't judged the braking distance correctly, resulting in a collision. The rain and the curve were factors that contributed. The trains had no visible damage. After an emergency application of the brakes, I forgot to do the required brake tests. I was speeding in the yard. The speed is Restricted [Speed], not exceeding X MPH. I found myself doing X MPH to Y MPH [5 MPH overspeed] a few times throughout the night.*

#### C<sup>3</sup>RS Expert Analyst's Callback Summary:

The reporter, an Engineer, was working a yard assignment with the regularly assigned Conductor shuttling equipment from the yard to the initial station. The Engineer was alone in the cab of a diesel electric locomotive. When they were leaving the yard for the station, the Engineer said it is a

downhill grade. They came through an overpass into a short right-hand curve and saw the rear of the train ahead. The reporter placed the train into emergency at Y MPH and estimates the impact to be Z MPH. There were no injuries. The Crew inspected the equipment and did not find any visible damage. The reporter said it was a lack of situational awareness, as the brakes were not applied fast enough. The reporter did not anticipate the train to be ahead of theirs, as the normal order is that train is usually behind theirs heading into the station. The reporter was not completely focused and was working on paperwork. Visibility and rain were contributing factors and the reporter said if it was clear, the train would be able to stop. The reporter explained that fatigue was also a factor, as the event occurred near the end of a very long shift and the Crew was focused on going home.

### Restricted Speed May Mean Stop and Check

In this incident, a train was moving at restricted speed and the Engineer stated there was limited visibility of an upcoming switch. He thought the Conductor lined the switch for their movement.

■ *I arrived at [the] Yard. ... I was advised that my equipment would be on Track X... My Conductor arrived and walked straight to the electric lock switch and called for permission*

for our train to operate the switch and derail and occupy the Main Track. Permission was granted by [the] Dispatcher... The Conductor then walked to the head end of the equipment and gave me a Job [Safety] Briefing pertaining to how we would operate our shift for the day and advised me that the track was lined for the Main Track. ... we did a Class II Brake Test, and he gave me the okay south into [the] Station. ... After going through the switch and stopping at the station, the Conductor asked the Assistant Conductor if they had thrown the switch back, and the Assistant Conductor stated that they didn't touch the switch. Upon observing the switch, it was clear that we had gone through a misaligned switch, and the Dispatcher was notified.

**C<sup>3</sup>RS Expert Analyst's Callback Summary:**

The reporter, an Engineer, stated the train was operated at Restricted Speed while approaching the switch. Due to the time of day, it was difficult to clearly see the switch. The reporter stated it was the first time working with this Crew, and the second time working out of this yard. In the future, the reporter will remain vigilant when approaching switches in the yard.

**Another Day, Same Train, Unexpected Different Route**

When regularly assigned to a train, daily routines can be disarming. When operating in a routine restricted speed location, vigilance is still required. In this incident, a train passed an improperly lined switch onto a freight track.

■ *Traveling from Station X back to Station Y. I had an Approach Medium in the cab, X MPH speed limit. Coming into Interlocking X, I got a Medium Approach, which I get every day unless I get a Limited Clear. So, I proceeded at Y MPH through the interlocking as I do every single day. Halfway through it, I realized that while I had the same signal that I've had for over a decade, this time I was routed to a freight track. I brought the train to a safe stop. [I] called the Dispatcher right away [while] still in the middle of the Interlocking and informed him that we were accidentally routed to the wrong track, which was not wired. [The] Dispatcher admitted [the] mistake. The Foreign Carrier admitted [the] mistake. Same signals and speeds. Nothing changed except the way we were accidentally routed.*

**C<sup>3</sup>RS Expert Analyst's Callback Summary:**

The reporter, an Engineer, stated the route in the interlocking was not being observed due to the fact that the Engineer was not operating on a Restricting signal. The Engineer realized the train had not been routed correctly when the movement continued straight instead of starting to cross over where

it should have. By the time the Engineer was able to bring the train to a complete stop, the leading pantograph had gone past the end of the catenary wire. The pantograph was slightly damaged. The Foreign Carrier sent a light locomotive to pull the train backwards to clear the interlocking so it then could be rerouted.

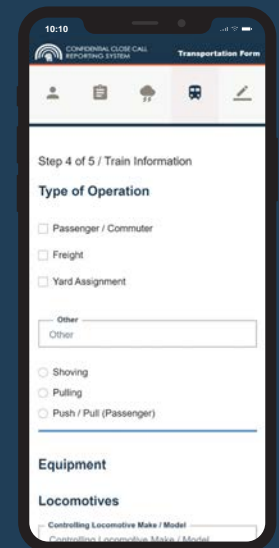
**C<sup>3</sup>RS Overview Webinar Video New!**



A short presentation to learn how you can share your safety stories and lessons learned is now available on the C<sup>3</sup>RS website! Your report may save lives. In exchange for your valuable safety information, you may be eligible for protections from carrier discipline and FRA enforcement. [▶ View Webinar](#)

**Did You Know?**

NASA C<sup>3</sup>RS has mobile friendly report forms so you can submit your report from your mobile device! Also, when you submit a C<sup>3</sup>RS report, a NASA C<sup>3</sup>RS Expert Analyst may call you to get more information or to better understand the safety issues you are sharing. It is very important that you return our call as soon as possible so that your identification (ID) strip (sent by the U.S. Mail) can be returned to you quickly.



The incoming call on your phone will not say NASA but will be from **area code 650 or 217**. Remember, the more information you include in your report, the faster the ID strip can be returned to you!



Report Intake By Craft January through December 2024	
Transportation	3,946
Engineering	181
Mechanical	154
No Craft Specified	1

**C<sup>3</sup>RS**  
*Inside The Rail*

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<https://c3rs.arc.nasa.gov>

Monthly Report Intake Previous 3 Months	
October	468
November	386
December	376