



Inside THE RAIL

From NASA's Confidential Close Call Reporting System



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A Recipe for Close Calls

Almost anyone can cook, even a novice just has to follow a recipe! Some are easy to follow on a box or simple cookbook, while others can be more complex, like your great grandmother's treasured recipes handed down and refined over many generations. It is important to always follow each step in a recipe carefully because any deviation can result in you having to order a last-minute pizza from the nearby shop.

Safety and operation rules are the same. You follow a prescribed speed or count down the correct number of cars while shoving, as stated in the rules. If there is a deviation from the standards, you can end up in a critical and undesired situation. The most important example of this is **restricted speed**. While there are many "recipes" when

it comes to operating at restricted speed, the outcome has to be as perfect as a multi-course meal from a five-star restaurant. As stated in 49 CFR 236.812, restricted speed is "a speed that will permit stopping within one-half the range of vision, but not exceeding 20 miles per hour". Some operating rules and railroads further restrict the CFR requirements.

Railroad employees find themselves in situations that require restricted speed almost as often as you cook dinner. In this newsletter, C³RS has put together some of the most substantial firsthand accounts of close calls related to restricted speed.

Out of the Oven Too Soon

After passing a restricted signal, an Engineer explains how human factors and a signal system issue led to a close call event.

■ *I was running down the Track and I had all Clear signals. This was my first day back to work in months. While looking at the track, cab, and Bulletins, I looked up at Positive Train Control (PTC) and it said stopping. The signal dropped on me. Train dumped and I recharged it. I took off because the signals cleared up again after malfunctioning. The Train's PTC said overspeed. It dumped again. I'm thinking I got past one of the signals displaying a dropped Restricting. I recharged again and moved the train to the next signal at Restricted Speed.*

C³RS Expert Analyst's Callback Summary:

The reporter, an Engineer, explained that after the signal dropped, the Engineer cleared the penalty and proceeded. While recovering from the penalty, the signal came back up, but the Engineer stated the train got past one signal before then. The Engineer contacted the Dispatcher who said it was OK to proceed. According to the Engineer, this issue happens a lot during rush hour and is common. The older equipment was cited as a contributing factor. Fixing the PTC systems and providing newer equipment were preventable measures provided by the Engineer.

Overcooked

An Engineer provides thoughtful details on an event involving Positive Train Control, track geometry, and restricted speed.

■ *Positive Train Control (PTC) initiated a stop. The train was traveling below maximum authorized speed due to the signals. Once on a more favorable signal, I increased the speed and shut the throttle off. The train continued to increase speed due to track geometry. PTC beeped and I set the air, but the train still increased above the Temporary Speed Restriction (TSR) speed, and PTC initiated a brake application.*

C³RS Expert Analyst's Callback Summary:

The reporter, an Engineer, explained the signal in the field displayed a Clear indication, but it did not correspond with the Dispatcher's. The Engineer was verbally authorized by the signal, which required movement at restricted speed. Citing the downhill grade as a contributing factor, the reporter had brakes set and was 1 MPH overspeed when PTC applied a penalty brake application. According to the reporter, changing PTC so that 1 MPH overspeed would not trigger a penalty would be a corrective action.

Same Meal, New Recipe

A new restriction contributed to a close call event related to restricted speed, as told here by the Engineer.

■ *There was a new X MPH speed restriction and I was not able to bring my speed down fast enough to satisfy Positive Train Control (PTC). PTC put my train into a penalty brake application. After recovering from the penalty brake application, I accidentally brought my train up to Y MPH [9 MPH overspeed] before realizing I was Delayed in Block.*

C³RS Expert Analyst's Callback Summary:

The reporter, an Engineer, explained the restriction was a new Temporary Speed Restriction listed in the Bulletins and covered in the Job Safety Briefing. When Positive Train Control (PTC) enforced the restriction, the reporter admitted to forgetting where the train was. After recovering from the penalty and pulling, the reporter operated over Restricted Speed. The Engineer added that a reminder from the crew, after the penalty, to proceed at Restricted Speed could have prevented the overspeed.

Missing Ingredient

When traveling at restricted speed, a key "ingredient" is being able to stop short of any object. In this example provided by a crewmember, a train working within an industry had a close call event.

■ *There were two tracks at the industry. We were shoving onto one track to drop the rear car before spotting the six hoppers on the other track to be loaded. There was a barricade erected protecting the stored or parked track equipment on the track where we would be dropping the rear car. Because of Positive Train Control (PTC) beeping as I cleared the Junction, I was distracted and apparently did not hear the Conductor's first command to stop. I heard the second one and stopped promptly as I already had air set and was only doing 2-3 MPH. We stopped and the bottom pin of the knuckle tapped the barricade. No damage to report. The barricade wasn't even knocked over. I was in control of the movement, heard the car counts down to, "Half a car" and stopped quickly once I heard, "Stop."*

Too Many Chefs

In an everchanging event with many people involved, an Engineer goes into detail about how important job safety briefings are when operating under restricted speed conditions.

■ *I was talked past a signal displaying Stop indication and failed to keep my speed at Restricted Speed while operating from the Cab Car on a seven-car train with a Locomotive pushing. There were Working Limits on Track X and Track Y was Out of Service. Initially, I was given authority through Track X to proceed eastbound. After making my Station stop, I called the Dispatcher at Signal X because of a Stop signal at Signal Y. Then things got a little trickier. The Foreman in Charge informed me that I had to go into the Out of Service track and back to the in-service Working Limits at Signal Z. So, with the hoopla of changing authority and getting authority*

into his Out of Service track on Track Y, and getting talked past both signals at Signal Y and Signal Z, I forgot to stay at Restricted Speed once the Foreman gave me the highball on the X MPH speed restriction, he had given me for the crossover switches. I realized my error as I approached the next signal. By then, I had been going about Y MPH to Z MPH [20 MPH overspeed] for about a mile and it was not possible to get back below Y MPH before reaching the next signal.

C³RS Expert Analyst's Callback Summary:

The reporter, an Engineer, explained the crew had just started their shift, and as soon as they got a door light, they departed, without any time pressure. They got permission through Working Limits and made a station stop in the limits. Departing the station, the crew got a Stop signal and were talked by. The Foreman in Charge of the Working Limits changed the previous instructions and directed the crew to the other track, and the Dispatcher gave authority by the signal again. The train was operating at Restricted Speed and was given the Temporary Speed Restriction through the crossover. Once the Foreman advised the train had cleared the crossover's restriction, the Engineer accelerated, forgetting the train was at Restricted Speed. The overspeed was realized about a half mile to a mile from the next governing signal, which was clear and, by that time, it was too late to reduce to Restricted Speed. The train was slowed but not able to comply with Restricted Speed. According to the reporter, signs were not displayed. The only visual reminder or clue was the Foreman standing at the restriction. The crew had an initial Job Safety Briefing before departing and the Conductor repeated the given instructions over the radio, but the crew did not have another Job Safety Briefing after conditions changed. Possible ways, provided by the reporter, to prevent this from happening again were to have another person on the head end to help with writing things down, rather than just trying to remember things.

Did You Know?

If you submit a C³RS report, a NASA C³RS Expert Analyst may call you if you do not include enough information or to better understand the safety issues you are sharing. It is very important that you return our call within three days so that your identification (ID) strip (sent by the U.S. Mail) can be returned to you quickly.

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 2022	
Transportation	2,857
Engineering	79
Mechanical	97

C³RS
Inside The Rail

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

Monthly Report Intake Previous 3 Months	
October	265
November	254
December	237