



Inside **THE** RAIL

From NASA's Confidential Close Call Reporting System



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Operating on-track equipment is no easy task: stopping, pulling, shoving, and slowing. There are many actions operators can take while traversing a track that can lead to safe and controlled movements. What happens when all the actions available no longer work for continuing safe action? In these instances, crew members aboard on-track equipment have one “fail-safe” option that might prevent a major incident: Emergency Brake Application.

Train air brakes are a relatively simple system. Compressed air is pushed on a piston in a cylinder, which presses the brake's shoes against the wheels to stop trains. Today's modern train air brake systems are based on a design patented by George Westinghouse in 1869. Emergency braking rapidly applies the brakes in the event of brake pipe failure or an emergency application by the operator or passenger cord/handle. When proper air tests are completed and passed, activating on-track equipment's full braking can prevent major incidents from occurring.

This month *Inside the Rail* shares reports that describe reporter's use of their on-track equipment's Emergency Brake Application in hopes that it affords railroads with some lessons learned.

Inches from a Derail

An Engineer utilized emergency application of the brakes to stop short of a derail.

■ *Prior to leaving the yard, the train was being fueled. The Conductor instructed the rear Brakeman to go out to the equipment, line the route and perform the Class II Air Brake Test. In an effort to reduce his walk, the rear Brakeman drove to the engine and excluded their responsibility of lining the route. After the brake test was complete and after given the proceed signal, the Engineer started the train toward the crew room. Just before reaching the crew room, the Engineer noticed a derail in the derailing position and put the train into emergency. The train stopped inches from going over the derail.*

C³RS Expert Analyst's Callback Summary:

The reporter, an Engineer, explained the train set was smaller than normal, so the distance to the flop over derail protecting the fuel pad was shorter. There was snow and ice buildup around the derail, making it harder to see. The reporter strained their eyes to see the yellow derail. The speed was 2 MPH lower than Maximum Authorized Speed for the track when the Engineer saw the applied derail and placed the train into emergency. The area around the derail was dug out, but difficult to see and the train stopped a car length before the derail... The Brakeman was extra, only worked part of the shift and this was their last train. According to the reporter, they were rushing and more concerned with

how they would get home later. The decision to drive the route was in order to place their vehicle closer to where they would be at the end of the shift.

Preventing Disaster

An Engineer encountered Maintenance of Way employees working on the tracks without the proper authority or protection.

■ *Approaching Interlocking on]Track X, I and the operating Student Engineer observed numerous Track Employees fouling Tracks X and Track Y. The Student Engineer started to blow the horn and I yelled over to the Student Engineer to place the train into emergency. Some of the Track Workers did not take any action and some dove out of our way at the last second. The Track Workers were apparently clearing snow from switches at the Interlocking. The train stopped on top of the switch on Track X. We had a near-miss of striking several Track Workers. I verified that all Track Workers were in the clear. The Conductor notified the Dispatcher of the incident via the phone. We did a brake test and continued to Station.*

C³RS Expert Analyst's Callback Summary:

The reporter, an Engineer, stated during their Job Safety Briefing they did not see any track work in the Bulletins. It was also noted by the reporter that they did not receive any notices from the Dispatcher about the track work. The Engineer mentioned that the Maintenance of Way employees were fouling both main tracks. The reporter relayed that the

train was put into emergency due to the employees fouling the tracks. The Engineer acknowledged that they did not see any safety devices, a Flagman or a Watchman.

Give Them an Inch, They will Take Your Yard

A Conductor placed a locomotive into emergency while shoving, due to an employee placing a derail in the derailing position.

■ *Myself and the Brakeman were on the point, shoving... I noticed 2 non-employees operating Off Track Equipment next to the track and asked the Engineer to stop. I made sure they would not move until we came back through. We began to head south again and we were lined for the crossover to Track Y. The sun was in our eyes and made it difficult to see. I noticed a cart by the derail on/off switch. We were 3 cars away and the employee threw the derail up. I had anticipated the possibility before that and had given a 2-car count before. When the derail went up, I gave a stop to the Engineer and I placed the train into emergency from my end from the control stand. We stopped 2 cars from the derail. The employee operating the derail works in the engineering department and uses Roadway Worker Protection rules in the Mechanical Facility. The first issue is, this is a yard and not a roadway. No notice was given by the employee, that work was to be done in the area we were switching...*

C³RS Expert Analyst's Callback Summary:

The reporter, a Conductor, stated that they received permission from the Foreman to come in and switch the facility. The Conductor believes the Foreman thought they were finished with their switching moves in the facility, and gave the tracks to some engineering employees. The Conductor reiterated that they were outside the facility to make some moves on the other side, and at no point did they give back the tracks to the Foreman or report clear of the facility.

Recipe for an Emergency

An Engineer placed a train into emergency to avoid entering Working Limits without permission.

■ *... A Stop Sign was in effect on the Track to protect a construction crew rebuilding Station Z. The Stop Sign has been in the Track Bulletins for a couple months. On the day of the near-miss, our Positive Train Control (PTC) on the lead engine missed a PTC transponder at Station A. As a result, the system wasn't enforcing Temporary Speed Restrictions*

because it couldn't identify our location due to misreading the transponder at Station A... I lost my focus and forgot I was approaching the Stop Sign... The train was running track speed (X MPH). When I came around the curve to Station Z, I saw the Approach Sign, placed the train in emergency and stopped the train about 300 feet from the beginning of the Working Limits. While I acknowledge it was my fault for not keeping focused on my train and the upcoming restrictions, the Foreman in Charge of the Working Limits played a role in the near miss by not placing the Approach Signs at the proper braking distance from the limits of the Stop Sign based on our braking distance chart... The Approach Sign should have been a mile back, near Station A...

Not Supposed to be There

An Engineer initiated an emergency application of the brakes after encountering an unannounced Stop Sign.

■ *... There is a daily track Out of Service on this route starting at XB:00 AM. As we left the station previous to this location, there were still 15 minutes before this Rule took effect. We passed the covered Approach Board and proceeded toward the area where the track workers were. As we entered the Interlocking, the cab signals went off. I looked up to cut them in and then looked back at the track to notice that there was an uncovered Stop Sign. I immediately dumped the train. After composing myself, I looked at my watch and it was XA:50 AM... I saw a truck driving toward me, it was a Flagman, and they told me that they thought my train had already passed, so they took the cover off the Stop Sign and called the Foreman in charge and told them we were clear... I don't know why the person who was in charge of taking the covers off the sign did it before it was time, and also why they did not have to identify our train through a locomotive or control car number as being clear.*

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 3 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 June 2021		C ³ RS Inside The Rail Issue 13 July 2021 https://c3rs.arc.nasa.gov	Monthly Report Intake Previous 3 Months	
Transportation	1,237		April	184
Engineering	58		May	233
Mechanical	38		June	316