



Inside **THE** RAIL

From NASA's Confidential Close Call Reporting System



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C³RS: Over a Decade of Safety Reporting

In 2011, the Confidential Close Call Reporting System (C³RS) was launched as part of the FRA's Rail Safety Action Plan risk reduction strategy. The program was modeled after the successful NASA Aviation Safety Reporting System (ASRS) with the goal of improving rail safety through the collection and sharing of safety information.

C³RS began with a single participating carrier and received 100 reports in its first year. Over ten years later, C³RS has now grown to include 20 participating carriers and has received over 24,000 reports. The information provided in these voluntarily submitted close call reports is invaluable and provides insight into the safety issues railroad employees face on a daily basis.

For more than a decade, NASA C³RS Expert Analysts have gleaned important safety insights from these reports including the factors that contribute to common safety events such as overspeed and doors off platform events, as well as identifying new and emerging safety issues related to the introduction of Positive Train Control (PTC) and the COVID-19 pandemic.

In 2021, the DataBase Query Tool (DBQT), full of de-identified reports, went on-online¹ marking a major milestone for safety in the rail industry by allowing anyone to review and learn from these close call reports. NASA also shares safety information from these reports with the rail community by issuing Alert Bulletins / For Your Information Notices, Quick Response data summaries and extensive research studies.

What has been truly notable is the participation of the different carriers, crafts, unions, and organizations that contribute to make C³RS a unique safety reporting system that is unparalleled world-wide. Below are samples of close call events submitted by reporters from key railroad groups: Engineering, Signal, Transportation, Mechanical, and Dispatchers. Each report provides a unique close call event that highlights and suggests corrective actions to prevent the incidents from happening again.

Engineering Close Call Event

A Manager provides insight into how a communication breakdown during an emergency repair caused a close call event involving energized electric rail.

■ *The Construction gang was on the rail repairing a pole line cable that came down during the overnight storm with Track and Time and an electrified rail outage. During the cleanup, an electrified rail man told us the rail became re-energized through a back feed. We had crews actively working on removing strand and cable that could have been in contact with the electrified rail. There were no injuries and everyone stepped clear of anything metal.*

C³RS Expert Analyst's Callback Summary:

The reporter, a Manager, stated that a crew of fifteen plus employees were working on Track and Time authority issued to them by the Dispatcher... The reporter explained that the crew was not certain as to the exact circumstances involved, but at some point the power was restored to the track segment where all the employees had been working. During the cleanup process, the Electric Traction Manager informed the Manager that the electrified rail had become energized due to a train down the line "bridging the gap." None of the employees were making contact with the tracks at that time...

Signal Department Close Call Event

A Signal Maintainer explains how human factors and deviating from procedure set up a close call event when disconnecting breakers in a signal bungalow.

■ *At the Interlocking, I was removing old equipment to be salvaged. The last piece of equipment to be removed were snow blower breakers. All of the breakers were in the off position. I had cut out four of the smaller breakers before I got to the large main breaker... On the fifth wire, I saw a bright flash from the sixth wire. I believe that making an assumption that the power had been turned off along with not having a multi-meter available to verify, was the cause of this incident. I believe that it is imperative to always verify that the circuit is not live before disconnecting anything from it.*

C³RS Expert Analyst's Callback Summary:

The reporter, a Signaller, was working alone disconnecting power to equipment near control points that were going to be upgraded. Power had been shut off several weeks prior. The reporter said there were no lights in the bungalow and assumed the power was off on the circuits as well, but did not initiate steps to verify they were off. The Signaller was unaware the circuits were on a separate feed and that they were energized... The third wire to be cut had faulty insulation and touched the breaker panel, which was connected to the

ground and created a flash and an arc... To prevent mishaps like this in the future, the reporter said there needs to be an Electrician or other qualified employee to perform electrical work. The Signaller also recommended improved communication among the crafts as well as implementing a proper Lock Out/Tag Out procedure.

Transportation Close Call Event

Protecting a shove at restricted speed as a train approached a blind curve, a Conductor discusses why communication and situational awareness are so important.

■ *The Train departed Station X on time. We were shoving with the Dispatcher's permission on a routine move to Station Y. We received a restricting indication at the Interlocking, which was a blind curve. After making the curve, I observed two track workers sitting in the gauge working on a metal box. I blew the proper whistle warning and the workers immediately jumped out of the gauge...*

C³RS Expert Analyst's Callback Summary:

... The Conductor was in the rear control car and was in control of the shoving move. The crew was in the process of shoving their train one mile so they could pull into the other station... The reporter suspected the workers were contractors who were stealing foul time as they had no authority to occupy the track as the train had a restricting signal... The reporter concluded by saying there was no Foreman present to obtain Track Authority for the workers.

Mechanical Close Call Event

Communication and job safety briefings are critical to railroad safety. Here is a report from a Machinist highlighting an instance where neither were properly applied in a blue flag protection situation.

■ *Blue lights were removed by a Laborer from the end of the track and train before an onboard brake test was completed. Lack of communication to the Electricians on the other end of the train in the cab car left them unprotected by blue lights. It was discussed about, what and why it happened afterward.*

C³RS Expert Analyst's Callback Summary:

The reporter, a Machinist, conveyed the Laborer was the employee that called in Blue Light Protection. While sitting in the engine the reporter observed the Laborer remove the blue light, which left the Electrician unprotected... The reporter cited a lack of communication as the contributing factor to the event. In the future, better communication by

everyone in the group will help prevent incidents like this from happening again.

Dispatcher Close Call Event

A Dispatcher shares a deviation from track blocking procedures that could have resulted in a serious incident.

■ *... Foreign Carrier's Train arrived in the Station after midnight with an extra electric engine that had to be removed and brought to the Foreign Carrier's Yard. I gave the appropriate signals for the light engine to proceed west and switch blocked the route. I realized after the light engine had already made its way to the Yard, I had the switch blocked as necessary. I did not apply a track block to prevent the Foreign Carrier's Train from coming in on top of the light engine. That being said, no signal was given on top of the light engine and no incident occurred.*

C³RS Expert Analyst's Callback Summary:

The reporter, a Dispatcher, stated that the move being made with the train was routine. However, in this particular instance the Dispatcher was distracted due to working from a different location than normal. The reporter explained that periodically, the Dispatchers are required to work from a different location so that the usual dispatching office can be disinfected for COVID-19. Therefore, there was an unusual amount of noise and activity, which is a distraction.

1. To search close call events that are submitted to C³RS, visit the C³RS website [Online Resources](#) page and click on [Confidential Close Call Reporting System Online Database](#).

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

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 December 2021	
Transportation	2,824
Engineering	108
Mechanical	72

C³RS
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<https://c3rs.arc.nasa.gov>

Monthly Report Intake Previous 3 Months	
October	287
November	301
December	261