

Risk Mitigation Success Stories

Issue No. 1 / 2024



The Federal Railroad Administration is publishing this newsletter on behalf of the C³RS program.

C³RS CORRECTIVE ACTIONS¹/ RISK MITIGATION INTERVENTIONS

The Federal Railroad Administration (FRA) is publishing this document to share information about corrective actions that railroads have implemented as a result of the Confidential Close Call Reporting System (C³RS). C³RS is an FRA-sponsored program that improves railroad safety through a confidential and non-punitive reporting process. To participate in C³RS, a railroad and any non-profit labor organization(s) representing the participating railroad's employees signed an Implementing Memorandum of Understanding (IMOU) with FRA. FRA has partnered with the National Aeronautics and Space Administration (NASA) to operate C³RS as an independent third-party.

C³RS permits railroad employees to confidentially report close call events (which include unsafe practices, behaviors, or situations that cause railroad safety concerns) and details of those events to NASA through a secure website or a written form. NASA will de-identify the reports and share them with a Peer Review Team (PRT) for the participating railroad, which is composed of representatives from railroad labor organizations, railroad management, and FRA. The PRT will then review the reports and develop recommended corrective actions that can help improve railroad safety by mitigating risks and hazards.

The information about corrective actions in this list has been voluntarily supplied to FRA by participating PRTs and does not identify the railroad or any employee(s) or other parties involved. The purpose of sharing this information about C³RS corrective actions is twofold. First, it will allow the entire railroad industry to learn about corrective actions that have been implemented by C³RS-participating railroads, which can help improve safety throughout the entire railroad industry. Second, it will help grow participation in C³RS by communicating the ways in which the program has succeeded in effecting

¹ Most corrective actions were recommended by a railroad C³RS Peer Review Team (PRT).



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positive changes in railroad safety. FRA will update this document periodically to include additional information about corrective actions FRA has received from PRTs.

DISCLAIMER: *The list is not inclusive of all completed corrective actions. While PRTs have voluntarily supplied the information in this list, the information has been minimally edited by FRA for clarity and brevity. Inclusion of a corrective action in this list does not indicate that FRA has reviewed or approved the corrective action.*

- **Development of a scenario-based training program for conductors, engineers, and dispatchers** – The PRT developed a class to show conductor, engineer, and dispatcher trainees different scenarios that they may encounter after they are qualified. The course is intended to enlighten and empower the trainees with information on real-life scenarios, and how to best solve them in a team setting, while also seeing how the other crafts handle scenarios from their points of views. The scenarios that are given are based on events reported through C³RS.
- **Replacement of headlight switches on locomotives** – A PRT received numerous C³RS reports of locomotive engineers operating over grade crossings with the headlight on dim after dimming the headlight as a courtesy for a passing train. The PRT worked with the mechanical department to design a pressure switch that momentarily dims the headlight and automatically returns the headlight to bright.
- **Development of seasonal preparedness document for customers** – Following C³RS reports regarding safety concerns and incidents on customer sidings, the PRT worked with the customer service representatives to design and distribute a seasonal briefier to customers to educate them on steps that need to be taken for safe railroad operations on their property.



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- **Extension of crossing circuits to allow for higher speeds** – After receiving numerous C³RS reports of locomotive engineers violating a permanent 10 MPH speed restriction on a 30 MPH section of track, the PRT asked why the restriction was in place. What was discovered was that a customer facility built 10 years prior required the installation of a grade crossing on a 30 MPH section of track. When the crossing was installed, the circuits were not installed correctly and therefore required a 10 MPH restriction. The PRT worked with the signal and engineering department to secure \$8,000 to extend the circuits so the restriction could be lifted and trains would not have to slow down. A safety blitz was also conducted at the crossing for truck drivers for the customer facility to raise awareness of the increased train speeds.
- **Revision of daily job briefing form for engineering employees** – A section detailing “portable derails installed” was added to a job briefing form following C³RS reports where temporary derails were left in place at the conclusion of work.
- **Tags added to heater and positive train control (PTC) switches in locomotives** – A carrier received C³RS reports detailing confusion between heater and PTC switches. A switch tag was developed and added to locomotives to better distinguish between the switches.
- **Raising of switch indicator signals** – Following several C³RS reports that indicated crews were unable to see certain switch indicator signals, the carrier raised the signals 8 inches to improve the line of sight and avoid ice and snow.
- **Installation of car marker signs on station platforms** – Two passenger carriers developed and installed car marker signs for station platforms to assist crews in



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spotting trains on platforms. This was in response to many C³RS reports documenting mis-platforming trains because of different train lengths, construction activities, crew error, etc.

- **Speed restriction reminder sign** – A PRT developed a reminder sign for train crews that make a passenger stop in the middle of a speed restriction. Several C³RS reports were received by the PRT of train crews accelerating to track speed after completing station work at a passenger station. The new sign reminds the train crew they are still within the limits of a restriction.
- **Streamlining of daily bulletin orders** – After several C³RS reports citing confusion and distraction regarding bulletin orders, a PRT created a sub-committee to review the makeup and design of the bulletin order document. The result was a streamlining of daily bulletin orders removing some items and moving others in order to make it easier to read and identify emergent items.
- **Signal maintenance and testing employees issued tablets** – Based on C³RS reports received involving confusion regarding switch numbers, field maintenance and testing, employees were issued tablets to verify PTC/track charts.
- **PTC activated in the middle of the interlocking instead of before it** – Following a C³RS report involving PTC that resulted in an activation in the middle of an interlocking instead of before it, a programming issue related to PTC at dual-control switches within an interlocking was identified and corrected.
- **An obscured signal was not clearly visible** – Several C³RS reports were submitted by locomotive engineers having trouble determining signal indications because of a



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structural obstruction. The PRT used the information to build a safety case convincing the signal department to relocate the signal clear of the obstruction.

- **The mechanical department left a blue flag on a track after releasing it to the yardmaster** – Following a C³RS report that involved a mechanical employee who left a blue flag on a track after releasing it to the yardmaster, the mechanical department re-engineered procedures for applying/releasing blue flags.
- **Hard to see and verify yard switch targets** – C³RS reports were submitted asserting aging switch targets were weathered and faded making it difficult to determine switch position from a distance. The Track department replaced yard switch targets with highly visible material enabling train crews to determine switch position from a distance.
- **Working limit signs are not consistently placed in their specified locations** – Following C³RS reports involving working limit signs not consistently placed in their specified location, the railroad enhanced communication and processes regarding flagging for roadway workers.
- **Passengers discharged in an out-of-service portion of a station platform** – Following C³RS reports of passengers discharged in an out-of-service portion of a station platform, the railroad built and erected barricades with improved signage for out-of-service portions of platforms.
- **Derails not visible** – After several one-wheel derailments in a locomotive shop involving derails not clearly visible, the railroad attached derail signs to ties making derails more visible.



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- **Speeding after cab signal and PTC failures with multiple speeds depending on the type of failure** – Following C³RS reports involving speeding after cab signal and PTC failures, with multiple speeds depending on the type of failure, the railroad simplified rules and implemented a single uniform, maximum authorized speed for all types of cab signal and PTC failures.
- **Hand thrown switch misaligned on several occasions** – Following C³RS reports involving misaligned hand thrown switches, the railroad installed a button-controlled track switch and switch indicator.

The DataBase Query Tool

In addition to the corrective actions described above, on May 3, 2021, the DataBase Query Tool (DBQT) was made available online at the NASA C³RS webpage to promote the dissemination of C³RS information: <https://narwhal.arc.nasa.gov:8080/index.html#/srs/search>. NASA owns the data in the DBQT and manages the DBQT website. The DBQT is the nation's largest repository of voluntary, confidential safety information provided by the railroad industry's frontline personnel, including locomotive engineers, conductors, switchmen, dispatchers, control operators, carmen, electricians, machinists, roadway workers, track maintenance personnel, and signal maintainers.

DBQT includes the narratives submitted by reporters (after they have been sanitized for identifying details). These narratives provide an exceptionally rich source of information for policy development, education, training, and more. The database also contains coded information by expert analysts from the original report which is used for data retrieval and analyses. As of May 16, 2024, over 21,518 records are in the DBQT database.

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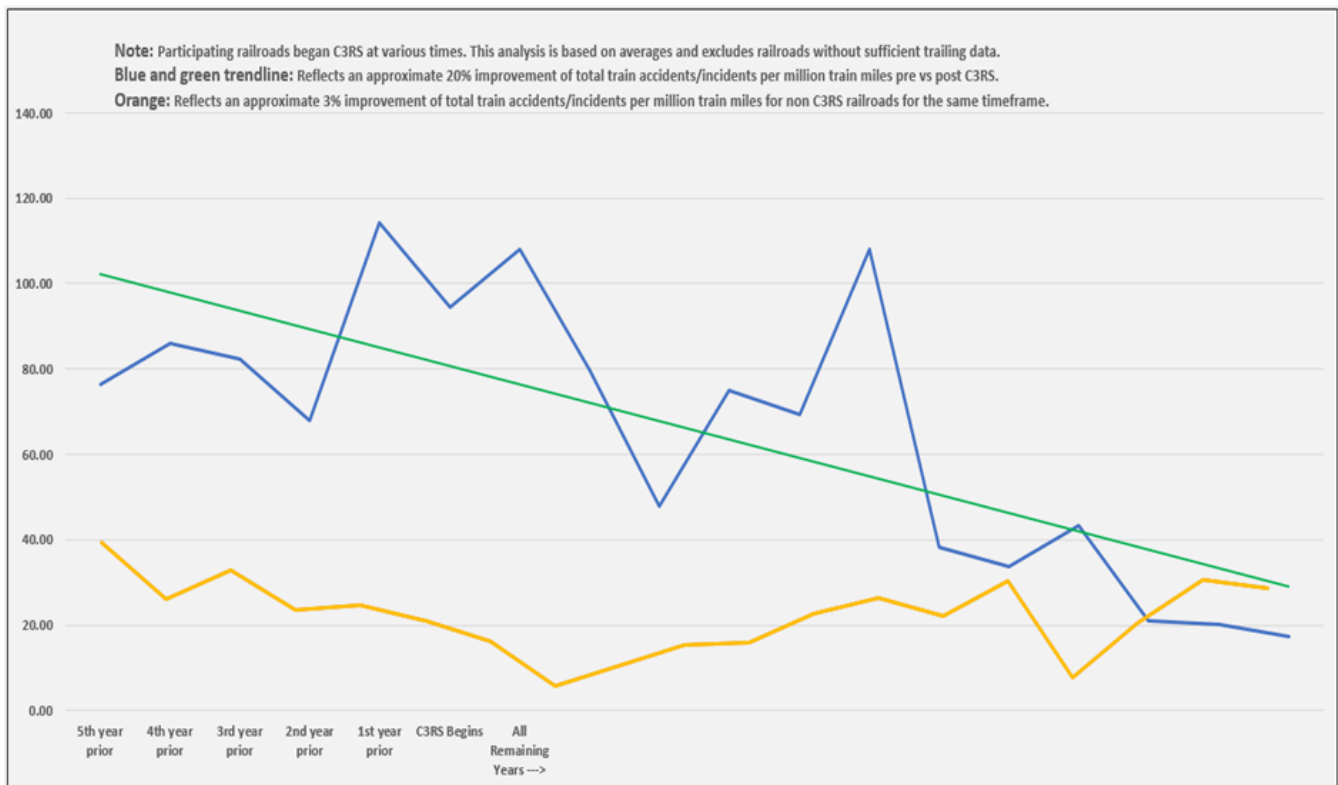


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C³RS Safety Improvements

Finally, as shown by the chart below, railroads participating in C³RS have seen significant safety improvements, demonstrating an approximate 20% reduction in total train accidents/incidents per million train miles after joining C³RS.

C³RS Participating Railroads Safety Improvement versus non C³RS Participating Railroads²



²FRA developed this chart using safety data posted at <https://data.transportation.gov/stories/s/FRA-Safety-Data/dakf-i7zd>.