



## Confidential Close Call Reporting System: Preliminary Evaluation Findings

### SUMMARY

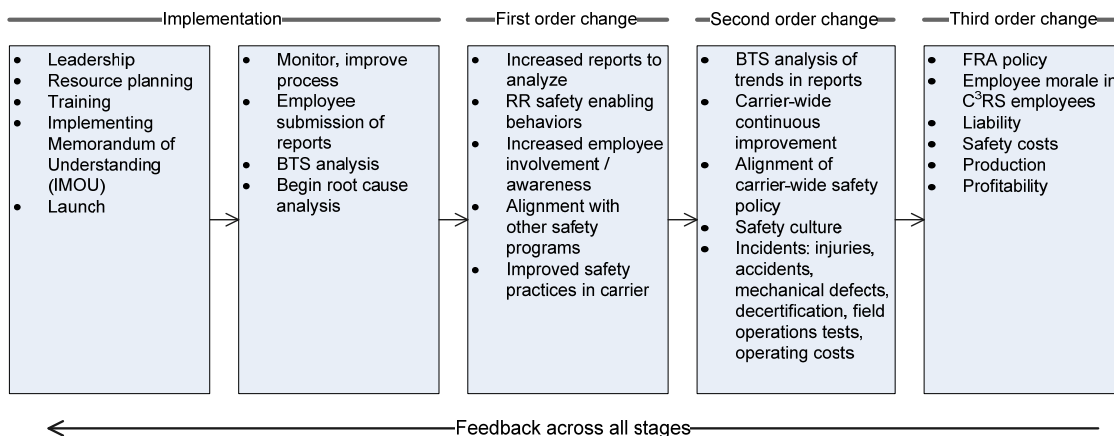
The Federal Railroad Administration (FRA) is implementing a collaborative problem-solving approach to improving safety. The Confidential Close Call Reporting System (C<sup>3</sup>RS) is a human factors-based approach that is designed to reduce the accident rate more quickly—a rate that declined markedly until 1985, but which has remained stable since then. The assumption driving C<sup>3</sup>RS is that technology and process innovations are approaching the limits of their capacity to improve safety, and that human factors-based solutions need to be added to the technology/process mix if substantial safety improvement is to occur in the future. C<sup>3</sup>RS-like programs have proved themselves in other industrial sectors, but their use in the railroad industry is novel.

C<sup>3</sup>RS contains two critical elements that are designed to help it succeed in railroad settings. First, employees' reports of close calls are routed through the Bureau of Transportation Statistics (BTS), thus providing confidentiality protection under the Confidential Information Protection and Statistical Efficiency Act (CIPSEA). Second, sanitized information from the BTS is sent to joint labor/management teams whose members have been specially trained in collaborative, root-cause problem solving, including implementing corrective actions.

FRA's plans call for testing C<sup>3</sup>RS with four railroads. To date the Union Pacific and the Canadian Pacific Railroads are participating. It is expected that two other railroads will join within the next 6 months. FRA is carefully evaluating three aspects of C<sup>3</sup>RS:

- 1) formative assessment of how well it is being implemented,
- 2) summative assessment of its impact on accidents and safety culture, and
- 3) sustainability assessment of how to maintain the program over the long run.

FRA's goal for the evaluation is to decide whether C<sup>3</sup>RS should be promoted in the entire railroad industry in the United States, and if so, how this will be done. The logic model guiding the evaluation appears in Figure 1. It is too soon to assess the impact of C<sup>3</sup>RS, but early indications are that it can be implemented successfully and that it does lead to root-cause analysis and corrective actions with respect to close calls.

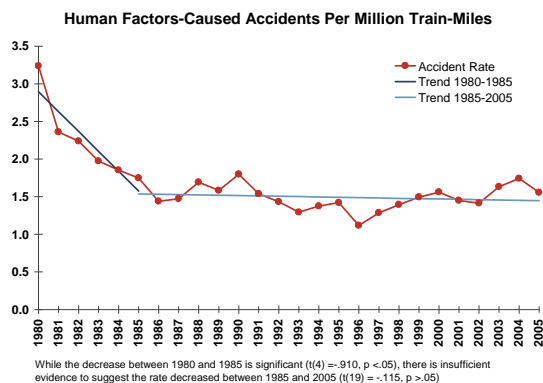


**Figure 1. C<sup>3</sup>RS Logic Model.**

## BACKGROUND

Collaborative root-cause problem solving of close calls reports has proved to be an effective method for improving safety in chemical process, nuclear and transportation industries. Success requires a focus on precursor events that may lead to accidents, use of data to determine corrective actions, and an organizational setting capable of implementing corrective actions. For the system to work, a method that identifies precursor events and allows cooperative, cross-functional problem solving is needed. In the railroad industry, this includes carrier management, labor,<sup>1</sup> and the Federal Railroad Administration (FRA).

FRA understands these issues well. FRA's motivation is its realization that the accident levels in the U.S. railroad industry have remained stable over the past 20 years after the industry experienced considerable improvement between 1980 and 1986 (see Figure 2).



**Figure 2. Human Factors-Caused Accidents.**

This leveling off of accident rates suggests that to achieve further reductions a new approach may be helpful. The Risk Reduction Program is such an approach. Through it, FRA will partner with carriers to fund and evaluate a series of innovations whose objective is to improve risk management by affecting accident precursors and establishing organizational mechanisms and climates that are more supportive of collaborative problem solving. FRA's objective is to determine:

- which of its innovations show promise,
- how successful programs can be scaled up to the entire railroad industry, and
- what is needed to sustain these programs over time.

<sup>1</sup> For an assessment of applying close call analysis in the railroad industry see: <http://www.closecallsrail.org/pubs/closecalls05a.pdf>

One such innovation is the Confidential Close Call Reporting System (C<sup>3</sup>RS).<sup>2</sup>

## CONFIDENTIAL CLOSE CALL REPORTING SYSTEM

Under the provisions of C<sup>3</sup>RS, workers who see or experience unsafe conditions report their observations to the Bureau of Transportation Statistics (BTS). BTS then:

- assesses the submission and collects additional information as necessary through interviews with the person submitting the report,
- removes personally identifying information, and
- sends its findings to a joint labor/management/FRA problem-solving group working at the participating railroad, known as Peer Review Teams (PRTs).

The PRT then applies a continuous improvement, root-cause analysis process to the close call report (or related group of reports), which results in a corrective action recommendation to the railroad's local or senior management as appropriate. BTS is needed as it has statutory authority to protect data confidentiality.<sup>3</sup> PRTs are needed to assure that a thorough root-cause analysis is done, and that workable corrective actions are developed that will be acceptable to labor, management, and FRA.

This seemingly simple process has required a great deal of effort to implement and maintain.

1. BTS's involvement needed to be established through an interagency agreement to assure data confidentiality.
2. Labor and management at each site have to agree to work collaboratively.
3. A formal Implementing Memorandum of Understanding (IMOU) is then negotiated between labor and management to assure workers that there will be no retribution.
4. FRA agrees to grant regulatory waivers.
5. PRT members are trained in collaborative root-cause problem solving designed specifically for C<sup>3</sup>RS.

As C<sup>3</sup>RS proceeds it is subject to continual adjustments to respond to fluctuations in labor/management relations at the local and national

<sup>2</sup> For details on C<sup>3</sup>RS, visit: <http://www.closecallsrail.org/>

<sup>3</sup> Reference CIPSEA  
[http://www.bts.gov/programs/confidentiality\\_policy/2003\\_03\\_champaneri/html/](http://www.bts.gov/programs/confidentiality_policy/2003_03_champaneri/html/)



levels, and to changes in political and regulatory climates. To weather these adjustments and succeed, ongoing proactive support is required from FRA, from labor leadership at local and national levels, from railroad management within service units and from their corporate officers.

The C<sup>3</sup>RS demonstration pilot plan includes participation from four railroads. C<sup>3</sup>RS has been up and running at the Union Pacific (UP) Railroad (North Platte, NE) since February 2007, and at the Canadian Pacific Railroad (Portage, WI) since March 2008. Negotiations with two other railroads are currently progressing.

## FINDINGS TO DATE

The C<sup>3</sup>RS evaluation is guided by a logic model that shows the process of C<sup>3</sup>RS implementation, and short- and long-term impacts of the program (See Figure 1). Effective implementation leads directly to immediate (first-order) change. If these changes are successful, follow-on (second- and third-order) changes can occur.

Data at this point are preliminary. Though early in the process, evaluation data have begun to provide insights about some aspects of the logic model. Available data come from statistics compiled by the BTS and from interviews with a wide variety of stakeholders in the C<sup>3</sup>RS process. These include labor unions and carrier management at participating railroads, officials at FRA, personnel at BTS, the C<sup>3</sup>RS implementation team at the John A. Volpe National Transportation Systems Center (Volpe Center), and contractors who have been instrumental in recruiting participants and training in C<sup>3</sup>RS continuous improvement methods. So far, 29 interviews have been conducted (24 with individuals, the remainder conducted in groups). Content analysis of these interviews has revealed the following information.

### C<sup>3</sup>RS Implementation

The initial conditions are present for learning from close calls. These conditions facilitate open communications and organizational learning by encouraging stakeholders to study these situations and implement corrective actions that improve safety without punishing those typically considered responsible—those closest in time and space to the situation.

A related finding is that an evaluation of this system can be implemented and can provide stakeholders with useful information. Multiple indicators support these conclusions.

An IMOU has been successfully concluded with each of two railroads and agreed to by labor, management, and FRA; negotiations are also underway with two other railroads. IMOU documents are 25 to 30 pages of detailed language specifying events eligible for C<sup>3</sup>RS; and who is allowed to submit reports and what actions will (and will not) be taken by labor, management, and FRA. Serious negotiations were required to complete these documents—working out an IMOU is a process in which stakeholders ask the hard questions of each other and resolve difficult issues.

Reports have been flowing steadily through the system, averaging 38 to 42 a month. (This is for only one railroad.) This flow indicates that workers trust confidentiality assurances because if they did not, reports would not be submitted. Further, filling out a report requires two types of investments of time and effort. First, completing an incident report involves handwriting several paragraphs. Second, once a report is submitted, experts at BTS interview the submitter to obtain further information. People would not make this effort unless they saw value in it. (They also receive protection from discipline.) To gain a sense of why the mere fact that reports are being generated is such an important finding in a railroad context, consider the concerns about retribution that must be overcome.

The following is a brief excerpt from a mock report written for training purposes only, with the typical detail of a real report (actual reports are confidential).

*...After the head-end of the incident train passed the restriction, the engineer started to increase the throttle and speed of the train forgetting that the rear end of the train was still in the 25 mph restriction. He looked up at the counter, which was still counting down, and realized his mistake. At that time he took immediate action to reduce the speed of the train from 29 mph to 25 mph.*

Data also show that:

- The PRTs meet regularly and address issues conveyed to them by the BTS. Substantive close calls are being considered.
- Close, trusting working relationships have developed between the BTS and the PRTs.
- BTS is more than a filter and a pass-through. BTS adds value by investigating individual reports and by assessing trends and commonalities across reports.



## C<sup>3</sup>RS IMPACT

At this stage most of the data speak to how C<sup>3</sup>RS was implemented. However, some data address the potential impact of the program.

- The C<sup>3</sup>RS process has been able to highlight the multiple factors that play a role in a single event. Those insights led to more systemic corrective actions.
- Corrective action is being taken on close call events that can have a pronounced impact on safety.
- The PRT identified processes that merited corrective action, some of which were not identified as key problems prior to activation of the C<sup>3</sup>RS reporting system.
- The process of analyzing close call reports identified classes of close calls whose existence were known in a general way and highlighted their importance as systemic issues.
- C<sup>3</sup>RS created a new process for communicating about safety-critical information across the carrier.
- By establishing effective labor/management/FRA teams, the C<sup>3</sup>RS process has improved the ability of labor and management to collaborate on safety improvement efforts.
- Safety culture (i.e., accepted beliefs about how safety should be improved) may be shifting into a more collaborative mode.

## CONCLUSIONS

C<sup>3</sup>RS can be implemented successfully. This finding is important because of the complexity of the program, as suggested by the following examples. A detailed IMOU must be negotiated between the FRA, the unions, and the railroad. The involvement of BTS must be established through an interagency MOU between FRA and BTS. Effective, efficient, and trusting relationships must be developed among the parties. Labor and management must be trained in collaborative root-cause problem solving. Corrective actions must be identified and acted upon. It is by no means obvious that any of this can be successfully

implemented across the industry, yet it has been in two railroad settings.

## ACKNOWLEDGMENTS

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## KEYWORDS:

Close calls, human factors, safety culture, risk reduction, continuous improvement, employee involvement

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