

# CONTRIBUTING FACTORS FRAMEWORK

## About the Contributing Factors Framework

The Contributing Factors Framework (CFF) captures and codes information about all of the factors that may have contributed to a rail safety occurrence.

The CFF enables information to be recorded in a consistent way to support industry-wide analysis.

The CFF is endorsed by the Rail Safety Regulators Panel (RSRP) and is designed to complement current occurrence reporting processes.

It allows rail operators and regulators to collect

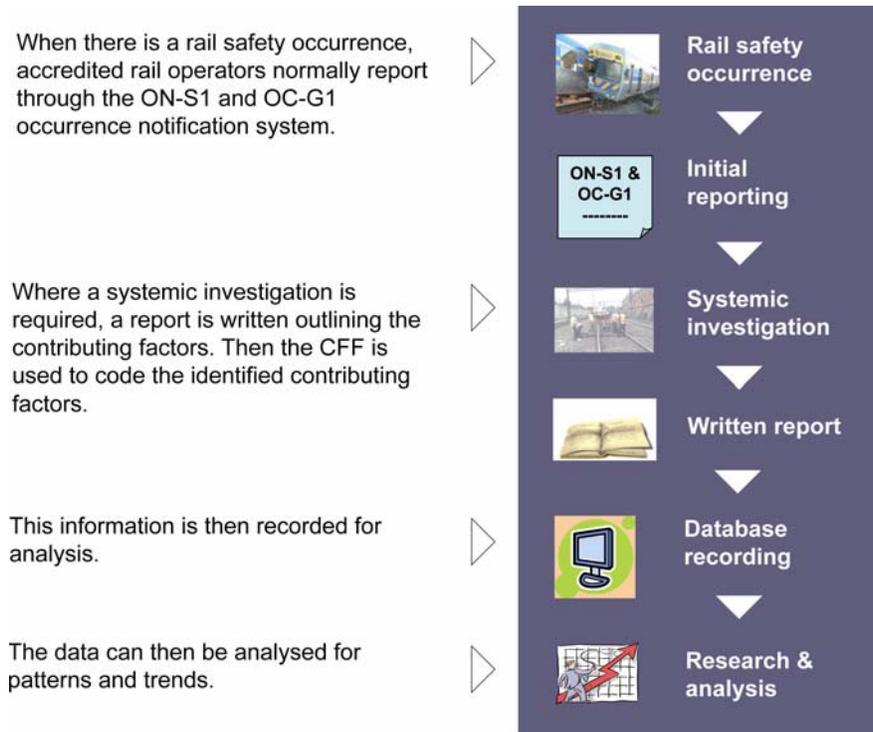
systemic safety data so that they can identify patterns and trends in safety issues and take action to rectify them.

Use of the coding framework by the rail industry is voluntary, but encouraged.

From 1 July 2009, state rail safety regulators will be using the coding framework on the investigations they conduct or receive from accredited rail operators in their jurisdiction.

CFF documentation is available on the RSRP website (<http://www.rsrp.asn.au/>).

Figure 1 – The CFF process and its integration with the investigation process



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## Frequently asked questions

### General questions

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#### How is the CFF different to existing databases?

The CFF is not a database. It is a system for coding information about the systemic contributors to rail safety occurrences.

#### Who will use the CFF data?

The data may be used by:

- Rail operators
- Rail safety regulators
- Investigation authorities such as NSW Office of Transport Safety Investigations (OTSI), the Victorian Office of the Chief Investigator (OCI) and/or the Australian Transport Safety Bureau (ATSB).

#### What will CFF data be used for?

The data will be analysed to identify emerging safety issues and trends.

#### Why the Reason model?

The CFF is based on the Model of Organisational Accidents developed by Professor James Reason. The 'Reason' model is well known within the Australian rail industry and forms the basis of a number of investigation models/approaches. These include the investigation approach outlined in Australian Standard AS 4292.7 (2006), ICAM™ and the Code of Practice for Rail Safety Investigation (CMC, 2006).

### Benefits

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#### What are the benefits for operators?

- It has the potential to enable the comparison of contributing factors across participating organisations and/or jurisdictions.
- Over time, aggregate CFF data will allow the identification and analysis of safety trends.
- It will provide a more informed understanding of the systemic issues associated with rail safety occurrences and enhance the identification of more sustainable solutions.
- At a procedural level, the CFF will encourage improvement to systemic investigation skills.

### Coding

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#### What occurrences will be coded?

Ideally, occurrences that are investigated thoroughly enough to allow the contributing factors to be identified will be coded. Initially, it is expected that severity level 1 and 2 investigations would be coded.

Level 1 and 2 investigations can be determined by using AS 4292.7 (see Appendix 1 in AS 4292.7). However, users are encouraged to code other occurrences using CFF if codable information is identified. This will ensure that the greatest amount of data is recorded.

#### Who will code the findings?

Ideally, the investigating officer will include a coding sheet as an appendix to the investigation report. The coding will be verified at the time the report is 'signed-off' within the investigating organisation.

#### When do I apply the CFF?

The CFF should be applied only when your investigation (however large) is complete. Generally, you should only include information found in the official investigation report.

# CONTRIBUTING FACTORS FRAMEWORK

## **Is there a 'right' number of items that need to be coded?**

There is no 'right' number of items to choose, nor is there a minimum number. This will depend on the information you get from the investigation. Sometimes there will be many items and on other occasions only a few.

Reasons for not identifying many factors may include a lack of available evidence, or that the occurrence was relatively simple in nature. However, in general terms, if an occurrence is more serious or there is a more detailed investigation, more contributing factors will be identified.

## **Who can I talk to if I need clarification?**

Contact your rail safety regulator's office for guidance, if required (see back page for contact details).

## **Causes, root causes**

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### **Why are there no 'causes'/'root causes', 'primary cause', or 'most contributing' factor etc. identified?**

There are a number of factors that may together contribute to a rail safety occurrence. However, the degree of contribution of each factor can be difficult to establish and adds complexity to the coding process. The CFF aims to keep the process of coding data relatively simple, however, investigators may choose to identify primary causes if they wish.

This approach is consistent with AS 4292.7 which does not use the term 'cause'.

## **Investigation methods**

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### **Why isn't the CFF based on the investigation model used by my organisation?**

Different organisations use various methods for investigation, such as Taproot™, LCAM™ and ICAM™. The aim of this project was to design a tool that was as compatible as possible with all of these methods. The CFF is based on Reason's Model of Organisational Accidents.

As the CFF takes the findings from investigations and codes them systemically, rail operators can continue to employ Taproot™ and ICAM™, LCAM™ or any other methodology that looks at occurrences in a systemic way.

### **How does the CFF fit with the AS 4292.7 and the Australasian Railway Association (ARA) Code of Practice for investigations?**

A conscious effort has been made to align the CFF with the Code of Practice for Investigations (CMC, 2006) and AS 4292.7 (2006). The Code of Practice provides guidance on how rail safety investigations should be conducted; AS 4292.7 provides guidance on the investigation process and how investigation reports should be written. The CFF captures key data from the outcomes of investigations according to the 'findings' recorded in the investigation reports.

## **Databases**

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### **Will a CFF database be created?**

CFF data will be collected and held by each regulator in their existing databases.

### **Who will have access to the database?**

Rail safety regulators in each jurisdiction will advise the industry of patterns and safety issues that are identified using the data. In time, aggregate findings will be published and it is envisaged that rail organisations are given some level of direct access to CFF data.

# CONTRIBUTING FACTORS FRAMEWORK

## Who will record the CFF data?

This will depend on your jurisdiction. In some jurisdictions, operators will enter the data, which will then be uploaded to the regulators' database. In other jurisdictions, the Regulator will record the data. Rail operators are encouraged to record the data on their own databases and analyse it for their own purposes.

## Using the CFF

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### How do I identify an individual/team action?

An individual/team action is an 'observable behaviour performed by a rail safety worker that can have an affect on safety'. The term 'rail safety worker' refers to any person who can have a relatively direct affect on safety (e.g. drivers, signallers, station staff) and is specified within the CFF.

If the person/people you think performed the individual/team action is in the list, then you should record an individual/team action. If they are not in the list then you may have a local condition and/or organisational factor to code. (Note that actions or decisions made by managers and supervisors are generally coded under local conditions and/or organisational factors, not as an individual/team action.)

### How do I identify a technical failure?

Technical failures are breakdowns of technology used in the rail operation. They may occur in any aspect of the lifecycle, including design, manufacture, operations or maintenance.

Should there always be an individual/team action and a technical failure?

There will not always be an Individual/team action and a technical failure to identify. You may identify one or the other. There may be multiples of these items as well.

### Why are local conditions and organisational factors not separated as they are in the Reason model?

It is not always easy to distinguish between whether a factor is local or organisational in nature so the local conditions and organisational factors have been grouped in one area in the CFF. The main emphasis is on getting information on the nature of the problem, rather than over-analysing which part of the Reason model the factor belongs to.

### The "other" category

Note that the item 'other' is used throughout the data set. However, those doing the coding are encouraged to use it only as a last resort and to provide a full description of the factor. These categories may be used to provide further defined categories in future revisions of the framework.

## More information

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More information about the CFF can be obtained by contacting ITSRR at [contact@transportregulator.nsw.gov.au](mailto:contact@transportregulator.nsw.gov.au)

A downloadable copy of the CFF manual can be obtained from the RSRP website <http://www.rsrp.asn.au/>.