

**Guideline for the
Top Event Classification of
Notifiable Occurrences**

Occurrence Classification – Guideline One (OC-G1)

June 2008

OCCURRENCE CLASSIFICATION

PURPOSE

To support uniform classification of rail safety occurrences across Australia.

BACKGROUND

The State and Territory Rail Safety Regulators have agreed on a standard national approach on which occurrences and their definitions should be reported nationally.

Each of the Rail Safety Regulators has implemented occurrence notification requirements in their respective legislation or published guidelines that are based on Standard ON-S1. The relevant State or Territory legislation and guidelines specifically define the manner and timing of occurrence notification requirements.

This document defines Occurrence Categories and Definitions for the purpose of providing detailed classification guidance for notifiable occurrences. This classification framework is used by all rail safety regulators to achieve consistency in the description of occurrences. This document also provides further clarity of the occurrences that need to be reported to Regulators in addition to the advice contained in ON-S1 through the provision of specific definitions of sub-categories of occurrences.

For clarification purposes and to assist understanding the definitions contained in this document are supplemented with example inclusions and exclusions. The examples used are not exhaustive but are only intended to clarify the type of occurrence and how it should be reported.

Appendix ‘A’ attached shows the occurrence classification system in tabulated form and reflects the information that will be recorded for each event.

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1. TERMINOLOGY AND DESCRIPTORS

1.1. Railway Operation

Inclusive term used to describe all activities of a railway related to the performance of its rail transportation business. In the model national Rail Safety Bill is defined as meaning

- a) *the construction of a railway, railway tracks and associated track structures or rolling stock;*
- b) *the management, commissioning, maintenance, repair, modification, installation, operation or decommissioning of rail infrastructure;*
- c) *the commissioning, maintenance, repair, modification or decommissioning of rolling stock;*
- d) *the operation or movement, or causing the operation or movement by any means, of rolling stock on a railway (including for the purposes of construction or restoration of rail infrastructure);*
- e) *the movement, or causing the movement, of rolling stock for the purposes of operating a railway service.*

1.2. Railway Occurrence

Any accident or incident involving a train or rolling stock whether in motion or not, or other event on railway premises affecting the safety of persons, property or railway operations.

Includes:

- Collision, derailment, fire, explosion, act of God, or other event; and
- Slips, trips and falls on trains or railway infrastructure.

Excludes:

- Occurrences in repair shops, not involving a train in motion.
- Occurrences in railway offices not directly affecting the safe operation or movement of trains.

1.3. Railway

A guided system designed for the movement of rolling stock, which has the capability of transporting passengers, freight or both on a railway track, together with its infrastructure, and associated sidings, and rolling stock.

Includes:

- A system of transport employing parallel rails or monorail which provides support and guidance for vehicles carried on flanged wheels such as:
- A heavy railway, or light railway with a track gauge equal to or greater than 600 mm;
- A monorail;
- An inclined railway;
- A tramway;
- A railway within a marshalling yard or a passenger or freight terminal;
- A private siding; and
- A railway of a kind prescribed by jurisdictional legislation.

Excludes:

- A railway in a mine which is predominantly underground and used in connection with the performance of mining operations;
- A slipway; or

- A railway used only to guide a crane;
- An aerial cable operated system;
- A railway of a kind prescribed by jurisdictional legislation to be excluded.

1.4. Train

One or more units of rolling stock coupled together, at least one of which is a locomotive or other self-propelled unit that is designed to run on a railway.

Includes:

- Single locomotive;
- Tram;
- Track machine.

1.4.1. Passenger Train

A train that is primarily designed and used for carrying passengers, whether or not it is carrying passengers at the time.

Passenger Train types are defined as follows

1.4.1.1. Urban Passenger Train

A passenger train that primarily travels within designated metropolitan areas.

Includes:

- Commuter trains.

Excludes:

- Long distance passenger trains (Refer Section 1.4.1.2); and
- Inter-city passenger trains (Refer Section 1.4.1.2).
- Tourist and Heritage Passenger Trains (Refer Section 1.4.1.3)

1.4.1.2. Non-Urban Passenger Train

A passenger train that travels outside designated metropolitan areas.

Excludes:

- Tourist and Heritage Passenger Trains (Refer Section 1.4.1.3)

1.4.1.3. Tourist & Heritage Passenger Train

All tourist and heritage passenger trains.

Includes:

- Tourist and heritage trams.

1.4.1.4. Tram

A specific type of passenger train.

Includes:

- Light rail.

1.4.2. Freight Train

A train that is designed and used for carrying freight, such as coal and minerals, grain, fuel, livestock and containers, whether or not it is carrying freight at the time.

Includes:

- Trains operated in conjunction with maintenance activities (e.g. ballast train etc).

Excludes:

- Track maintenance machines, road-rail vehicles / inspection vehicles etc.

1.4.3. Track Maintenance Train

A special type of train that is designed and used for track inspection and maintenance work.

Includes:

- Track machine.
- Hi-rail (road/rail vehicle) / inspection vehicle.
- Track maintenance trains operated by Tourist and Heritage railways.

Excludes:

- Ballast train (Refer Section 1.4.2).

1.4.4. Other Train

Any type of train not described in one of the above sub-categories.

Includes:

- Locomotive(s) operated on running lines without a passenger or freight consist (running light engine only);
- Monorail; and
- Inclined Railway

1.5. Type of Traction

The type of power unit providing motive power to a train.

Types of Traction are defined as follows

1.5.1. Electric

Excludes:

- Diesel electric.

1.5.2. Diesel

Includes:

- Diesel hydraulic; and
- Diesel electric.

1.5.3. Steam

1.5.4. Other Traction Type

Any type of traction that does not fit one of the above categories.

1.6. Rolling Stock

A railway vehicle, whether or not self propelled, that operates on or uses a railway track.

Includes:

- Locomotive;
- Carriage;
- Rail car;
- Rail motor;
- Light rail vehicle;
- Tram car;
- Light inspection vehicle;
- Self propelled infrastructure maintenance vehicle;
- Track machine;
- Hi-rail, (road/rail vehicle), when operating on a railway track;
- Trolley;
- Wagon;
- Monorail vehicle; and
- Freight vehicle.

Excludes:

- A vehicle designed to operate both on or off a railway track when the vehicle is not operating on a railway track.

1.7. Person Type

A description of individuals involved in a rail safety occurrence in terms of their relationship to the railway at the time of the occurrence.

Note: Person Type is distinct from Occurrence Type. For example, in the case of suspected suicide where the victim trespasses onto railway premises, the Occurrence Type is *Suspected Suicide* whereas Person Type is *Trespasser*.

Person types are defined as follows

1.7.1. Railway Employee

A person (whether full or part time) who works for or at the direction of the railway organisation.

Includes:

- Contractor;
- Contract worker;
- Subcontract worker;
- Volunteer (unpaid worker);
- Permanent employee;
- Temporary employee;
- A person supplied by an employment agency to carry out work for a railway operation;
- Trainee;
- Apprentice; or
- People undertaking tasks such as but not limited to driver, driver's assistant, guard, shunting staff, examiner, station staff, on board staff, office staff, technical staff, infrastructure staff and freight centre staff.

Excludes:

- Employees when not on duty.

Railway Employee types are defined as follows

1.7.1.1. Railway Staff

A person employed directly by a Railway Organisation.

1.7.1.2. Contractor

A person and any employee of that person, who has a contract of service to carry out work for a railway organisation and is carrying out that work.

1.7.1.3. Volunteer

A person who undertakes railway work for a railway organisation on a voluntary or unpaid basis and is carrying out that work.

1.7.2. Passenger

A person travelling or intending to travel on a train.

Includes:

- Before and after travel, but while on railway premises, irrespective of whether they have a valid authority to travel;
- An employee travelling while not on duty;
- Person boarding or alighting from train;
- Person travelling without a valid ticket.

Excludes:

- A trespasser;
- A person travelling on the outside of a train or in any location on a train not authorised for passenger travel; (Refer Section 1.7.3)
- A stowaway; (Refer Section 1.7.3)
- A railway driver or other employee who is on duty and travelling to a place of work at the time of the occurrence (Refer Section 1.7.1).
- A person in a railway station car park (Refer Section 1.7.4).

1.7.3. Trespasser

A person on railway premises and whether intentionally or negligently, is in a place they have no right or authority to be or for the purpose of carrying out unauthorised activities.

Includes:

- Suspected suicide;
- A person travelling in a place not authorised for their use, e.g. outside trains;
- Stowaways;
- A passenger or member of the public who uses without authority a recognised 'staff only' crossing (e.g. a staff foot crossing) at a station;
- A person who acts in disobedience of warning signs or signals, or strays away from the normal route of the level crossing;
- A person crossing the track anywhere other than at an authorised crossing point;

- People electrocuted while dangling or throwing objects from a position on non-railway property onto overhead line equipment/conductor rails at bridges etc;
- A person who falls or jumps from a platform, unless it can be established that the person did not do it deliberately, e.g. a fall caused by illness, platform congestion etc, in which case they should be treated as a ‘passenger’, ‘employee’ or ‘public’;
- A person on railway premises carrying out illegal activities.

Excludes:

- Any authorised person.

1.7.4. Public

Any other person affected by a railway occurrence.

Includes:

- A person who has no intention of travelling but who is not a trespasser, e.g. person taking a ‘short-cut’ through an open station concourse provided it is not in any unauthorised area;
- A level crossing or bridge user who becomes affected by an occurrence on the railway;
- A bystander;
- A person who is lawfully on any part of railway premises which is used in railway operations;
- A person who is adjacent to railway property when affected as the result of a railway occurrence;
- Emergency services personnel.

Excludes:

- Trespasser (Refer Section 1.7.1);
- Railway Employee (Refer Section 1.7.1);
- Passenger (Refer Section 1.7.2).

1.8. Road Vehicle

A vehicle or any device in, on, or by which any person or property is permitted to be transported on a public or private roadway.

Includes:

- An automobile, bus, truck, motorcycle, bicycle, farm vehicle etc;
- An animal-drawn vehicle and an animal that is being ridden or drawing a vehicle (as defined in the *Australian Road Rules*);
- Motorised scooters.

Excludes:

- A tram (Refer Section 1.4.1.4);
- Pedestrian conveyance. i.e., any human powered device by which a pedestrian may move other than by walking or by which a walking person may move another pedestrian (e.g., baby carriage, roller skates, skateboard and non-motorised scooters and wheelchairs).
- Motorised wheelchairs.

1.9. Level Crossing

A location where a public or private roadway, footpath, or both, crosses one or more railway tracks at grade.

Level crossings are provided with various levels of traffic control, which are defined as follows

1.9.1. Crossing with Active Warning Devices

Control of the movement of vehicular or pedestrian traffic across a railway level crossing by devices such as flashing light signals, bells or other audible warning devices, gates or barriers, or a combination of these, where the device is activated prior to and during the passage of a train through the crossing. This includes passive pedestrian crossings at road crossings equipped with active warning devices.

1.9.2. Crossing with Passive Warning Devices

Control of the movement of vehicular or pedestrian traffic across a railway level crossing by signs or devices, none of which are activated during the approach or passage of a train, and which rely on the user detecting the approach or presence of a train by direct observation.

1.9.3. Unprotected level crossing

No active or passive warning of any kind provided. Usually a field or farm crossing (occupational crossing).

1.10. Casualty

A fatality or a person admitted to hospital, or injured requiring medical attention as a result of a railway occurrence.

Includes:

- Death or injury of employee, passenger, trespasser, or member of the public;
- Death or injury of a person involved in a level crossing occurrence;
- A person killed or injured as the result of a fall at a railway station;
- Death or injury due to suspected suicide;
- Death or injury of a person as a result of an assault on railway premises.
- Death or injury sustained in a defined railway occurrence that is triggered by a health-related condition (e.g. person has a seizure who collapses and falls from platform and is struck and injured by train).

Excludes:

- Casualty as a direct result of a health-related condition (e.g. heart attack) on board a train or on railway property where it is not associated with or leads to a defined railway occurrence;
- Death or injury due to substance abuse (e.g. drug or alcohol overdose) on board a train or on railway property where it is not associated with a defined railway occurrence;
- Death or injury due to an occurrence in a repair shop, e.g., a person killed while engaged in the maintenance of a stationary train in a repair shop;
- Death or injury of a person travelling in a road vehicle involved in an accident on railway property where a train or other railway vehicle was not involved.

Casualty types are defined as follows

1.10.1. Fatality

A person who dies, within 30 days of a railway occurrence, from injuries sustained in that occurrence.

1.10.2. Serious Personal Injury

A person admitted to hospital as the result of injuries sustained in a railway occurrence who does not die within 30 days of the occurrence.

1.10.3. Minor Personal Injury

A person injured and requiring medical attention as a result of a railway occurrence but not admitted to hospital who does not die within 30 days of the occurrence.

1.11. Near Miss

Any occurrence where the driver of a moving train takes emergency action, or would have if there was sufficient time, to avoid impact with a person, vehicle or other obstruction and no collision occurred. Emergency action includes continuous audible warning and/or brake application.

1.12. Railway Premises

Any premises used for railway operation and any railway rolling stock used in trains on those premises.

Includes:

- Land (including any premises on land) on or in which is situated rail infrastructure;
- Land (including any premises on land) on or in which is situated any over track or under track structure or part of an over track or under track structure;
- Freight centres or depots;
- Workshops or maintenance depots;
- Premises including an office, building or housing used in connection with the carrying out of railway operations;
- Rolling stock or other vehicles associated with railway operations;
- The infrastructure (e.g. the permanent way/area on or about the track);
- Stations (including platforms);
- Train control centre;
- Signal boxes;
- Railway under construction; and
- Level crossings.

1.13. Track

The combination of rails, rail connectors, sleepers, ballast, points and crossings, or substitute devices, if used.

Track types are defined as follows:

1.13.1. Running Line

Railway track used primarily for the through movement of trains.

Includes:

- Main lines;
- Crossing/passing loops;
- Main line within yard limits;

- Lines within terminal stations;
- Balloon loops that form continuous part of the running line.

Excludes:

- Sidings;
- Yards (except main lines within yard limits).

1.13.2. Yard

Tracks other than running lines.

1.14. Civil

Railway structures and track base/drainage works not included under Track (Refer Section 1.13) and not related to signalling or electrical systems

Includes:

- Bridges and Overpasses.
- Platforms and other trackside structures.
- Culverts other drainage structures

1.15. Signal

Any track side device capable of displaying a proceed or stop indication or aspect for the purpose of stopping a train.

1.16. Proceed Authority

A formal authority issued to a train, or any party, allocating, occupancy of one or more block sections or segments of track.

1.17. Safeworking

An integrated system of operating procedures and technology for the safe operation of trains and the protection of people and property on or in the vicinity of the railway.

1.18. Security

Protection of persons, property and railway operation by means of arrangements to reduce the risk of harm from criminal acts of other parties such as theft, assault, sabotage and terrorism.

1.19. Railway Security Occurrence

An occurrence related to security breaches, violations, threats or illegal actions that endanger, or may endanger, the safety of railway operations, people or property.

1.20. Terrorism (act of)

An act, including but not limited to the use of force or violence and/or the threat thereof, of any person or (group(s) of persons, whether acting alone or on behalf of or in connection with any organization(s) or government(s), which from its nature or context is done for, or in connection with, political, religious, ideological or similar purpose or reason, including intention to influence any government and/or to put the public, or any section of the public in fear.

1.21. Wrong Side Failure

Where safeworking equipment fails to other than a safe state (eg. Signal fails to a less restrictive aspect than required, crossing barrier does not come down).

1.22. Security Sensitive Goods

Security Sensitive Dangerous Goods refers to any substances prescribed by relevant State and Federal legislation as security sensitive or of security concern.

In general these are items or materials carried as cargo which, if not controlled, may be used to perform an act of terrorism, sabotage etc.

1.23. Dangerous Goods

Dangerous Goods are goods described in the Australian Dangerous Goods Code and may be liquid, solid, gaseous or vapour and may include, for example

- *Substances hazardous to health.*
- *Substances that may be corrosive or potentially hazardous by virtue of their temperature or pressure.*
- *Substances which may, depending upon the circumstances of the escape, present a fire or explosion hazard.*
- *Biological agents.*

2. GUIDING PRINCIPLES FOR CLASSIFICATION

OC-G1 contains an occurrence classification scheme that forms part of a national framework for the reporting, analysis and management of rail safety. Its purpose is to support uniform classification and reporting of rail safety occurrences across Australia. While OC-G1 utilises a straightforward categorisation structure, there are several principles to be observed when classifying events under OC-G1. These are described below.

2.1. Conceptual Approach

There are various approaches to the classification of safety occurrences, for example, by cause or by consequence. OC-G1 adopts an outcome-based categorisation of occurrences similar to the notifiable occurrence categories defined in AS 4292.1 – 2006¹. This approach enables compatibility with a historical classification used by many states and territories, which was based on a former version of AS 4292.

2.2. Classification Structure

OC-G1 utilises a simple hierarchical classification structure comprising four classification tiers. Each category and subcategory under OC-G1 is defined by a title rather than a formal classification code. The first (broadest) level consists of the principle occurrence categories within this document. Most principle occurrence types consist of sub categorisation to either a second or third level tier. Each and every occurrence report classified under OC-G1 is to be classified to the lowest (most detailed) level of sub categorisation available for the principle occurrence type.

2.3. Classifying the Top Event

Rail safety occurrences often comprise a chain of related events, for example, a broken rail leading to a train derailment. Consequently, some, or all, of the events in an occurrence may have a corresponding category under OC-G1. In such cases the occurrence is classified once under OC-G1 according to the top event. The top event is the event with the greatest adverse outcome – expressed in terms of casualties, damage or accident potential. The top event is independent of the sequence of events. Appendix B provides examples of multi-event occurrences as a guide to determining the top event.

2.4. Occurrence Classification versus Occurrence Notification

State and territories have implemented legislation or guidelines, that specify the types of safety occurrences that operators must report to regulators termed “notifiable occurrences”. While notifiable occurrences are generally consistent with the occurrence categorisation of OC-G1 they tend to be more expansive and include pre-cursor or causal events that may not constitute an “occurrence” under OC-G1. Hence, readers should always refer to the legislation of the relevant jurisdiction to determine the types of occurrences to be reported, the specific information to be supplied and the timeframes for occurrence notifications. Occurrence Notification – Standard One (ON-S1) document provides guidance on notification.

2.5. Occurrence Statistics

Users of statistics based on OC-G1 occurrence categorisation should note that summary statistics for a particular occurrence type may not reflect the true frequency or rate of that occurrence type. This is because, under the top event approach, a given occurrence may not be classified as that occurrence type if it was associated with a related event of higher

¹ Australian Standard 4292.1 (2006) railway safety management Part 1: General Requirements. Standards Australia: Sydney.

consequence. For example, a broken rail will not be classified as a broken rail under OC-G1 on occasions where it caused a derailment.

3. OCCURRENCE CATEGORIES AND DEFINITIONS

3.1. Derailment

Where one or more rolling stock wheels leave the rail or track during railway operations.

3.1.1. Running Line Derailment

Any derailment that affects the safe operation of a running line.

Includes:

- The derailment of a train which has been authorised to depart and has commenced its journey to operate on a running line.
- Track machine derailments if they are travelling on the line as a running train.
- Shunting derailments occurring on running lines within station limits.
- A derailment in a yard or siding that results in the running line being obstructed or interferes with the safe operation of a running line.
- A derailment on a portion of track closed for maintenance or other purposes that results in obstruction of a non-closed running line or interferes with the safe operation of a non-closed running line.

Excludes:

- A derailment on a portion of track closed for maintenance or other purposes where there is no possibility that the safe operation of any non-closed running line is affected. (Refer Section 3.1.2)
- Derailments of rolling stock on loop lines, equipped with roll out protection (e.g. derailleurs) to protect the main line, which are temporarily being used for the stabling of rolling stock. (Refer Section 3.1.2)
- Derailments on balloon loops during the loading and unloading process not involving a train that has been authorised to depart and has commenced its journey to operate on a running line. (Refer Section 3.1.2)

3.1.2. Yard Derailment

Any derailment other than a running line derailment.

Includes:

- A derailment on a portion of track closed for maintenance or other purposes where there is no possibility that the safe operation of any non-closed running line is affected.

Excludes:

- A derailment in a yard or siding that results in the running line being obstructed or interferes with the safe operation of a running line. (Refer Section 3.1.1)

3.2. Collision

When a train or rolling stock strikes or is struck by another train, rolling stock, road vehicle, obstruction, person or rail infrastructure.

Includes:

- Running line collisions that occur in the normal movement of a train on a running line.
- Yard collisions that occur in yards or sidings or on closed running lines.
- Any collision in a yard, siding or closed line that results in the running line being obstructed or interferes with the safe operation of a running line.

Excludes:

- Any collision (except train to train) that occurs at a level crossing (would be covered under the definition of level crossing occurrence). (Refer Section 3.3)
- Collision with person associated with suspected or attempted suicide. (Refer Section 3.16)
- Collision with objects projected at trains.(Refer Section, 3.20.4.1)

3.2.1. Running Line Collision

Any collision that affects the safe operation of a running line.

Includes:

- The collision of a train which has been authorised to depart and has commenced its journey to operate on a main line.
- Track machine collisions if they are travelling on the line as a running train.
- Shunting collisions occurring on running lines within station limits.
- Any collision in a yard or siding that results in the running line being obstructed or interferes with the safe operation of a running line.
- A collision on a portion of track closed for maintenance or other purposes that results in obstruction of a non-closed running line or interferes with the safe operation of a non-closed running line.

Excludes:

- Collisions of work trains/track machines occurring within a portion of track closed for maintenance or other purposes that does not interfere with the safe operation of another non-closed running line. (Refer Section 3.2.2)
- Collisions that occur on a section of a running line which, at the time, was under absolute possession (meaning not available for normal train running), usually for the purposes of carrying out engineering works. (Refer Section 3.2.2)
- Collisions of rolling stock on loop lines, equipped with roll out protection (e.g. derailleurs) to protect the main line, which are temporarily being used for the stabling of rolling stock. (Refer Section 3.2.2)
- Collisions on balloon loops during the loading and unloading process not involving a train that has been authorised to depart and has commenced its journey to operate on a running line. (Refer Section 3.2.2)

3.2.1.1. Between Trains

Collision between trains.

Includes:

- Any type of train(including road rail vehicles on track and track machines).

3.2.1.2. With Rolling stock

Collision with rolling stock which at the time was not part of a train.

Includes:

- Collision between train and rolling stock.
- Collision with open rolling stock door.
- Collision with load protruding from rolling stock.

3.2.1.3. With Person Not On A Level Crossing

Collision with a person.

Excludes:

- Suspected or attempted suicide. (Refer Section 3.16)
- Person struck in a level crossing occurrence. (Refer Section 3.3.2)

3.2.1.4. With Animal

Collision with animals that results in damage to train safety equipment or rail infrastructure or that endangers the safety of railway operations.

Includes:

- Damage to rolling stock brake pipes/hoses, windscreens, mirrors or headlights etc.
- Damage to infrastructure including signals, points and bond wire etc.

3.2.1.5. With Infrastructure

Collision with fixed railway infrastructure.

Includes:

- Collision with bridges, platforms.
- Collisions with structures supporting overhead traction or signalling equipment.
- Collisions with buffer stops.

Excludes:

- Material that has become detached from fixed infrastructure. (Refer Section 3.2.1.73.11.5.2)

3.2.1.6. With Road Vehicle Not On A Level Crossing

Collision with a road vehicle except at a level crossing (Whether on track, fouling track or driving into train).

Includes:

- Collisions on roadways crossing tramways where tramways operate on roadways shared with road vehicles.

3.2.1.7. With Obstruction

Collision with an object on or about the track that endangers or has the potential to endanger the safety of railway operations.

Includes:

- Collision with objects on or foul of track.

Excludes:

- Track obstruction not resulting in collision. (Refer Section 3.11.5)

3.2.1.7.1 Natural Object

Objects which are part of the natural environment.

Includes:

- Rock slides, fallen trees etc.

3.2.1.7.2 Railway-Related Object

Objects which are a normal part of railway operations.

Includes:

- Misplaced sleepers, fish plates, rail off-cuts, etc.
- Gates.
- Equipment or freight fallen from trains.
- Infrastructure maintenance equipment.
- Detached items of railway infrastructure.

3.2.1.7.3 Other Object

Collision with any other object.

3.2.1.8. Other Running Line Collision

Any running line collision that is not classifiable under one of the above subcategories.

3.2.2. Yard Collision

Any collision other than a running line collision.

Includes:

- A collision on a portion of track closed for maintenance or other purposes where there is no possibility that the safe operation of any non-closed running line is affected.

Excludes:

- A collision in a yard or siding that results in the running line being obstructed or interferes with the safe operation of a running line. (Refer Section 3.2.1)

3.2.2.1. Between Trains

Collision between trains.

Includes:

- Any type of train (including road rail vehicles on track and track machines).

3.2.2.2. With Rolling stock

Collision with rolling stock that at the time was not part of a train.

Includes:

- Collision between train and rolling stock within yards.
- Open rolling stock door.
- Load protruding from rolling stock.

3.2.2.3. With Person

Collision with a person.

Excludes:

- Suspected or attempted suicide. (Refer Section 3.16.1.1)
- Person struck in a level crossing occurrence. (Refer Section 3.3.2)

3.2.2.4. With Animal

Collision with animals that results in damage to train safety equipment or rail infrastructure or that endangers the safety of railway operations.

Includes:

- Damage to rolling stock brake pipes/hoses, windscreens, mirrors or headlights etc.
- Damage to infrastructure including signals, points and bond wire etc.

3.2.2.5. With Infrastructure

Collision with fixed railway infrastructure.

Includes:

- Buffer stop.

Excludes:

- Material that has become detached from fixed infrastructure. (Refer Section 3.11.5.3)

3.2.2.6. With Road Vehicle Not On A Level Crossing

Collision with a road vehicle except at a level crossing (whether on track, fouling track or driving into train).

Includes:

- Collisions with road vehicles on roadways crossing tramways where tramways operate on roadways shared with road vehicles.

3.2.2.7. With Obstruction

Collision with any other object on or about the track that endangers or has the potential to endanger the safety of railway operations.

Includes:

- Collision with object accidentally on or foul of track.
- Collision with landslide, fallen tree.
- Collision with gate.
- Collision with objects that usually result from railway operations that are liable to pose a danger, including for example sleepers, rail off-cuts, fish-plates, significant quantities of concrete materials and equipment or freight fallen from trains.

Excludes:

- Track obstructions not resulting in collision .(Refer Section 3.11.5)

3.2.2.7.1 Natural Object

Objects that are part of the natural environment.

Includes:

- Rocks slides, fallen trees etc.

3.2.2.7.2 Railway-Related Object

Objects that are a normal part of railway operations.

Includes:

- Misplaced sleepers, track maintenance equipment, fish plates, rail off-cuts, etc.
- Gate.
- Equipment or freight fallen from trains.
- Detached items of railway infrastructure.

3.2.2.7.3 Other Object

Collision with any other object.

3.2.2.8. Other Yard Collision

Any yard collision that is not classifiable under one of the above categories.

3.3. Level Crossing Occurrence

Any collision of a train or rolling stock with either a road vehicle, person, level crossing safety equipment or gate, or any other occurrence that endangers or has the potential to endanger the safety of a railway operations or level crossing operations at a level crossing.

Includes:

- Cases of road vehicles causing damage to gates, barriers or other equipment at level crossings.
- Near miss incidents with road vehicle or person.
- Any case of a train running onto a level crossing when not authorised to do so.
- Any failure of equipment at a level crossing which could endanger users of the road or path crossing the railway. This includes ‘wrong-side’ failures of equipment (where equipment fails to a dangerous condition) whether or not any train or crossing user is involved at the time of failure.
- Incidents which occur during periods of unusual operation are to be included, e.g. when an automatic crossing is operated manually.
- Level crossing occurrences with tramways where trams operate over their exclusive right of way.

Excludes:

- Suspected and attempted suicides. (Refer Section 3.16)
- Infrastructure irregularities such as broken rails, welds and bonds that result in the unnecessary operation of crossing protection equipment. (Refer Section 3.11)
- Roadways crossing tramways where tramways operate on roadways shared with road vehicles. (Refer Section 3.2.1.8)

3.3.1. Collision with Road Vehicle

A train colliding with a road vehicle at a level crossing.

3.3.1.1. At Crossings with Active Warning Devices

3.3.1.2. At Crossing with Passive Warning Devices

3.3.1.3. At Unprotected Level Crossing

3.3.2. Collision with Person

A person struck by a train at a level crossing.

3.3.2.1. At Crossing with Active Warning Devices

3.3.2.2. At Crossing with Passive Warning Devices

3.3.2.3. At Unprotected Level Crossing

3.3.3. Level Crossing Equipment Failure/Defect

The failure of any warning equipment provided at a level crossing.

Excludes:

- Damage and interference by third parties. (Refer Section 3.3.4)

3.3.4. Level Crossing Equipment Damage/Interference

Third party damage to or interference with level crossing equipment.

Includes:

- Road vehicle colliding with level crossing equipment.
- Known or suspected interference or vandalism.

Excludes:

- Inherent failures or defects of level crossing equipment. (Refer Section 3.3.3)
- Interference that does not endanger the safety of railway operations (e.g. coin used to short circuit track).

3.3.5. Near Miss with Road Vehicle

Any occurrence where the driver of a moving train takes emergency action or has insufficient time take emergency action to avoid impact with a road vehicle at a level crossing and no collision occurred.

Note: Emergency action includes continuous audible warning and/or brake application.

Includes:

- Where the driver had insufficient time to take such emergency action.

3.3.5.1. At Crossings with Active Warning Devices

3.3.5.2. At Crossing with Passive Warning Devices

3.3.5.3. At Unprotected Level Crossing

3.3.6. Near Miss with Person

Any occurrence where the driver of a moving train takes emergency action or has insufficient time take emergency action to avoid impact with a person at a level crossing and no collision occurred.

Note: Emergency action includes continuous audible warning and/or brake application

Includes:

- Where the driver had insufficient time to take such emergency action.

3.3.6.1. At Crossing with Active Warning Devices

3.3.6.2. At Crossing with Passive Warning Devices

3.3.6.3. At Unprotected Level Crossing

3.3.7. Other Level Crossing Occurrence

Any Level Crossing Occurrence that is not classifiable under one of the above subcategories.

3.4. Signal Passed at Danger

Where a train passes without authority a signal displaying a stop indication or stop aspect.

Also referred to as SPAD – Signal passed at danger; or signal passed without authority.

Includes:

- When signals blacked out.

Excludes:

- Failure to comply with hand signal. (Refer Section 3.10)
- Proceed Authority Exceeded. (Refer Section 3.5)
- At locations such as stop boards, limit boards etc. (Refer Section 3.5)

3.4.1. Driver Misjudged

Where the driver has attempted to stop the train but failed to stop the train before passing the signal.

Excludes:

- SPADS associated with a rolling stock irregularity. (e.g. Brake failure - Refer Section 3.4.5)

3.4.2. Completely Missed While Running

Where no attempt has been made to bring a train to a stand before the stop signal and the train has proceeded into the next section or block without the necessary authority. The driver has not realised that the train has passed a stop signal until a more serious event results; the driver is stopped by train control over the radio or at the next signal or stopped by other external intervention.

3.4.3. Starting Against Signal

Where a stationary train starts and proceeds beyond a signal at danger without authority. The driver may or may not realise that the train has run past the signal.

3.4.4. Signal Restored as Train Approached

Where a proceed signal changes to stop in the face of the driver giving insufficient time for the train to brake to a stop prior to passing the signal at danger.

Includes:

- Where signal equipment fails.
- Where the controller changes the signal to stop.

3.4.5. Other Signal Passed at Danger

Any Signal Passed at Danger that is not classifiable under one of the above subcategories.

Includes:

- SPADS associated with a rolling stock irregularity.
- SPADS involving runaway rolling stock.

3.5. Proceed Authority Exceeded

Where a train exceeds the limits of authorised movements.

Includes:

- Train order / authority.
- Token.
- Special authority order.
- Warrant.
- At locations such as stop boards, limit boards etc.

Excludes:

- SPAD. (Refer Section 3.4)

3.5.1. Driver Misjudged

Where the driver has attempted to stop the train but failed to stop the train before passing the limit of the authorised movement.

3.5.2. Completely Missed While Running

Where the driver has made no attempt to stop the train and the train has proceeded into the next section whilst not in possession of an authority for the section. The driver has not realised that the train has entered the section without authority until a more serious event results; the driver is stopped by train control over the radio or at the next section location or stopped by other external intervention.

3.5.3. Other Proceed Authority Exceeded

Any proceed authority exceeded that is not classifiable under one of the above subcategories.

Includes:

- Proceed authorities exceeded due to a rolling stock irregularity.
- Proceed authority exceeded involving runaway rolling stock.

3.6. Signalling and other Proceed Authority Systems Irregularity

Any failure in the signalling system or equipment that endangers or has the potential to endanger the safety of railway operations.

Note: Equipment refers to hardware and software.

Note: A failure is potentially dangerous if it was not detected by other parts of the signalling system AND had at least one of the following consequences.

- 'Wrong side failure' (it caused a signal to display an aspect less restrictive than the proper one or it prevented a signal from displaying a more restrictive aspect).
- It resulted in incorrect operation of the interlocking.

- The presence or location of trains is not detected.
- The train crew obtained an erroneous authority due to malfunctioning of the applicable control system or components thereof.
- The train crew obtained a token or staff that should have been withheld by the control system.

Includes:

- Failures in design, installation, testing, operation and maintenance of vital signalling, points operating and train detection equipment.

Excludes:

- Failure of equipment at level crossings.(Refer Section 3.3.3)
- Signals operating correctly, as designed, and displaying a ‘stop’ or ‘danger’ indication because of a broken rail, weld, bond wire or other infrastructure defect or an occupied block. (Refer Section 3.11.1)
- Failure of a traffic light controlling the movement of vehicles on a road.(Not Classifiable)
- Where the system is protected by means of an automatic train stop system which, in the event of a failure in the signalling system, brings a train safely to rest.(Not Classifiable)
- Road traffic light failures that may form part of the signalling system for trams while they are operating on the road.(Not Classifiable)
- Procedural safe working failures.(Refer Section 3.10)

3.6.1. Wayside Signalling System Irregularity

Any failure in the wayside signalling system or equipment.

Includes:

- Failures of control systems and equipment, fixed structures and components associated with colour light, mechanical or semaphore signals, points operating and locking equipment and train detection equipment.
- Malfunction of point detection circuits.(Refer Section 3.11.4)

Excludes:

- Misalignment of points.(Refer Section 3.11.4)
- Broken or damaged points blade or components such as spreader bars and brackets.(Refer Section 3.11.4)
- Damage caused by trailing or run throughs.(Refer Section 3.11.4)

3.6.2. In-cab Signalling System Irregularity

Any failure in the in-cab signalling system or equipment.

Includes:

- Failures of control systems and equipment and on-board systems and equipment that comprise ‘In-cab Signalling Systems’.

3.6.3. Token Based System Irregularity

Any irregularity in the token system.

Includes:

- Failures of Electric Staff, Staff and Ticket or other Token based systems and equipment.

3.6.4. Communications Based Train Authority System Irregularity

Any failure in the communications based train authority system or equipment.

Includes:

- Failures of equipment and aids of manual or electronic train authority systems.

Excludes:

- Any safeworking errors such as can occur with control personnel in preparing authorities or drivers errors in misreading received authorities.(Refer Section 3.10)

3.6.5. Other Signalling and Proceed Authority System Irregularity

Any potentially dangerous failure of signalling or proceed authority systems and equipment that is not classifiable under one of the above subcategories.

3.7. Slip, Trip or Fall

Any occurrence involving a person slipping, tripping or falling on railway premises or being caught in train doors.

Includes:

- Tripping or falling over an obstruction or because of a defect in the surface.
- Slipping or tripping due to the presence of debris or a substance (e.g. water, ice, snow or food waste).
- Falling down steps or an escalator in a station.

Excludes:

- Events occurring in a railway office or maintenance workshop that does not involve the operation or movement of rolling stock.

3.7.1. To/From Train

Where a person slips, trips or falls while boarding or alighting from a train or falls from a train.

Includes:

- Train crew when boarding or alighting from a locomotive.

3.7.2. Between Platform and Train

Where any person falls or is caught between a platform, loading dock, or safety zone and a train on the adjacent line.

3.7.3. On Train

Where a person slips, trips or falls while travelling on a train.

3.7.4. On Track

Where a person slips, trips or falls while moving on or about the track.

Includes:

- Persons at level crossings.

Excludes:

- When a person falls from the platform onto the track.(Refer Section 3.7.5)

3.7.5. On/From Platform/Concourse

Where a person slips, trips or falls while on a platform, concourse or its surrounds.

Includes:

- When a person falls from a platform onto the track.

Excludes:

- Falls between platform and train. (Refer Section 3.7.2)

3.7.6. On/From Escalator/Lift

Where a person slips, trips or falls while on an escalator or in a lift.

3.7.7. On/From Stairs/Ramps

Where a person slips, trips or falls while on stairs or ramps.

3.7.8. From Structure

Where a person falls from any structure onto railway property.

3.7.9. Caught in Train Doors

Where a person is caught in train doors when boarding or alighting from a train at a station.

3.7.10. Other Slip, Trip or Fall

Any slip, trip or fall that does not fit one of the above subcategories.

3.8. Load Irregularity

Any situation where the load endangers or has the potential to endanger the safety of railway operations, persons and/or premises or causes damage.

Excludes:

- Dangerous Goods not loaded in accordance with the Australian Dangerous Goods Code. (Refer Section 3.9)

3.8.1. Door Open

Any door, hatch or gate that is incorrectly secured and could result in the loss of load or a collision.

Includes:

- Open container doors.

Excludes:

- Where loss of load has occurred.(Refer Section 3.8.3)

3.8.2. Out of Gauge

Any load that is placed, or any load that shifts, to become wider, higher or longer than the approved dimensions for the lines over which it operates.

Excludes:

- Any out of gauge load that has formal approval and special conditions for the transport of that load provided it remains compliant with that approval.

3.8.3. Load Shift

Any load that moves, spills or falls on or from a train.

Excludes:

- Load that moves out of gauge.(Refer Section 3.8.2)

3.8.4. Uneven Distribution of Load

Any uneven distribution of load on rolling stock or in the consist of trains.

3.8.5. Loose Load Fastening

Any fastening irregularity on rolling stock or in the consist of trains..

Includes:

- Chains, ropes, tarpaulins etc dragging, or hanging dangerously.

Excludes:

- Unlocked twist locks.(Refer Section 3.8.6)
- Load shifts.(Refer Section 3.8.3)
- Uneven distribution of loads.(Refer Section 3.8.4)

3.8.6. Other Load Irregularity

Any Load Irregularity that is not classifiable under one of the above subcategories.

Includes:

- Overloading that causes coupling misalignment.

3.9. Dangerous Goods

Any occurrence involving dangerous goods that endangers or may endanger the safety of railway operations, people and/or premises.

Includes:

- Spillage, leakage or emission of dangerous goods.
- Dangerous goods not loaded in accordance with the *Australian Dangerous Goods Code*.

Excludes

- Escape of dangerous goods resulting in fire or explosion.(these are recorded as fire or explosion occurrences, Refer Sections 3.14 and 3.15)
- Release or explosion of dangerous goods due to terrorism. (Refer Section 3.20.3)
- Theft of security sensitive or dangerous goods (Refer Section 3.20.5).

3.9.1. On Train

Any dangerous goods occurrence on a moving or stationary train.

3.9.2. Off Train

Any dangerous goods occurrence not on a train.

3.10. Safeworking Rule or Procedure Breach

Any breach of an operational safeworking system or procedure.

Includes:

- Human failures in the application of safeworking procedures.

- Failure to communicate or act on vital information to protect trains and personnel.
- Failure to comply with a hand signal.
- Irregularities in the management of train separation (eg a near miss).

Excludes:

- SPADs and authority exceedances. (Refer Sections 3.4 and 3.5)
- System failures identified as part of standard inspection and maintenance programs.

3.10.1. Wayside Signalling System Procedure/Rule Breach

Any breach of an operational safeworking rule or procedure where wayside signalling safeworking systems are used.

Includes:

- Intentional and unintentional acts.
- Operational errors when wayside signalling may be inoperative.

Excludes:

- SPADs. (Refer Section 3.4)
- System failures. (Refer Section 3.6)
- Track work protection failure. (Refer Section 3.10.5)

3.10.2. In-cab Signalling System Procedure/Rule Breach

Any breach of an operational safeworking rule or procedure where in-cab signalling safeworking systems are used.

Includes:

- Intentional and unintentional acts.
- Operational errors when in-cab signalling may be inoperative.

Excludes:

- SPADs. (Refer Section 3.4)
- System failures. (Refer Section 3.6)
- Track work protection failure. (Refer Section 3.10.5)

3.10.3. Token Based System Procedure/Rule Breach:

Any breach of an operational safeworking rule or procedure where token based safeworking systems are used.

Includes:

- Intentional and unintentional acts.
- Operational errors when the token based system may be inoperative.

Excludes:

- Proceed authority exceeded. (Refer Section 3.5)
- System failures. (Refer Section 3.6)
- Track work protection failure. (Refer Section 3.10.5)

3.10.4. Communications Based System Procedure/Rule Breach

Any breach of an operational safeworking rule or procedure where communications based safeworking systems are used.

Includes:

- Intentional and unintentional acts.
- Operational errors when the communications based system may be inoperative.

Excludes:

- Deficiency in, or absence of, communications systems that prevents emergency communications. (Refer Section 3.19)
- Proceed authority exceeded. (Refer Section 3.5)
- System failures. (Refer Section 3.6)
- Track work protection failure. (Refer Section 3.10.5)
- Communication hardware failures. (Refer Section 3.19)

3.10.5. Track Work Procedure/Rule Breach

Any breach of an operational safeworking rule or procedure used for worksite protection.

Includes:

- Intentional and unintentional acts.

Excludes:

- System failures. (Refer Section 3.6)

3.10.6. Other Safeworking Rule or Procedure Breach

Any safeworking rule or procedure irregularity that does not fit into one of the above subcategories.

3.11. Track and Civil Infrastructure Irregularity

Any irregularity in the track or civil infrastructure that endangers or has the potential to endanger the safety of railway operations, persons and/or premises.

Includes:

- The failure of a tunnel, bridge, viaduct, culvert, station, or other structure or any part thereof.
- Damage to bridges and barriers by road vehicles and ships.
- Damage to track at level crossings (eg. caused by road maintenance plant, road vehicles fouling track).

Excludes:

- Signalling and Electrical Infrastructure. (Refer Section 3.6)
- Damage to level crossing infrastructure (eg. gates, barriers etc. Refer Section 3.3.4)

3.11.1. Broken Rail

A fracture of the rail in a running line including a broken joint or weld, or detachment of a piece from the rail which necessitates an immediate stoppage of traffic or the immediate imposition of a speed restriction lower than that currently in force.

Includes:

- Complete breaks, broken joints, internal/external defects, etc.
- Broken rails detected during normal maintenance inspections.

3.11.1.1. Detected Outside Of Maintenance Inspections

Broken rails detected outside of normal maintenance inspections.

Includes:

- Detected by train crews.
- Detected by signalling system fault.
- Reported by members of public etc.

3.11.1.2. Maintenance Inspection Detected

Broken rails detected as part of normal maintenance inspections.

3.11.2. Misaligned Track

A horizontal or vertical misalignment of a running line which results in an immediate stoppage of traffic or the immediate imposition of a speed restriction lower than that already in force.

Includes:

- Heat buckles.
- Vertical misalignments (eg. due to formation failures).

Excludes:

- Misaligned track detected during maintenance activities.(Refer Section 3.11.7)

3.11.3. Spread Track

Any spread of rail track, in a running line, beyond approved gauge tolerances that results in an immediate stoppage of traffic or other restrictions.

Excludes:

- Spread track detected during maintenance activities.(Refer Section 3.11.7)

3.11.4. Points Irregularity

Any failure of a set of points.

Includes:

- Misalignment of points.
- Broken or damaged points blade or components such as spreader bars and brackets.
- Damage caused by trailing or run throughs.

Excludes:

- Irregularities detected and corrected during regular maintenance programs. (Not Classifiable)
- Malfunction of points motors and point detection circuits.(Refer Section 3.6.1)
- Failures of control systems and equipment.(Refer Section 3.6.1)
- Failure of points signalling operating and locking equipment and train detection equipment.(Refer Section 3.6.1)

3.11.5. Track Obstruction

Any object or damage that blocks or interferes with the track and civil infrastructure.

Includes:

- Obstruction resulting from subsidence or slippage of land.

- Flooding of the permanent way. This includes flooding or flood alerts which result in the suspension of services. (where investigations are undertaken into flooding and services are suspended while these are taking place, if found that it is not likely to cause an accident or endanger people and normal service is resumed, it is not classified).
- Fallen trees on the line or overgrown vegetation.

Excludes:

- Objects struck by trains / rollingstock. (Refer sections 3.2.1.7, 3.2.2.7)
- Instances of flooding at times when a line(s) is closed are not classified.
- Collisions with railway infrastructure. (Refer Section 3.2.1.5)

3.11.5.1. Natural Object

Objects that are part of the natural environment.

Includes:

- Rock slides, fallen trees, flooding etc.

3.11.5.2. Railway-Related Object

Objects that are a normal part of railway operations.

Includes:

- Misplaced sleepers, track maintenance equipment, fish plates, rail off-cuts, etc.
- Gates.
- Equipment or freight fallen from trains.
- Detached items of railway infrastructure.

3.11.5.3. Other Object

Any other object.

Includes:

- Shopping trolleys, bicycles, abandoned road vehicles, etc.

3.11.6. Civil Infrastructure Irregularity

Any civil infrastructure irregularity.

Includes:

- Damage to station facilities.
- Failure of a bridge, tunnel or other track support infrastructure.
- Bridge strike by a vessel or by a road vehicle or its load where structural damage occurs.
- The striking of a parapet of an over line bridge (i.e. a bridge over the railway) if materials fall, or are dislodged and rendered liable to fall, onto the line.
- Faulty design, construction or operation of infrastructure that results in an injury to a person.
- Collapse of a lift, escalator or staircase used by passengers.

Excludes:

- Damage to any railway equipment at a level crossing (e.g. level crossing gates, barriers, signalling equipment). (Refer Section 3.3.4)

3.11.7. Other Track Infrastructure Irregularity

Any other track infrastructure irregularity.

3.12. Rolling stock Irregularity

Any rolling stock irregularity that endangers or has the potential to endanger the safety of railway operations and/or people.

Excludes:

- Any irregularity detected and corrected during a normal maintenance program.
- Failure of a locomotive or multiple unit train that does not affect the safety of railway operations.

3.12.1. Train Parting

Any unintentional separation of rolling stock from a train.

3.12.2. Wheel/Axle Failure

The failure of a wheel or axle which occurs while the vehicle is in service.

Includes:

- The failure of a wheel or tyre, including a tyre loose on its wheel. This includes tyres that are known to have moved (i.e. shifted) on a wheel but after cooling are found to have returned to a 'safe state'.
- The failure of an axle but only if the axle fractures or shears.
- Screwed journals.

Excludes:

- Scale build up on wheels and flat wheels.(Refer Section 3.12.6)

3.12.3. Defective Bearing

Any defect or failure of an axle bearing which can lead to catastrophic axle failure.

3.12.4. Faulty Passenger Train Door

Any failure of passenger rolling stock doors.

Includes:

- Entry/Exit doors.
- Inter-coach doors, gangways and diaphragm plates.
- Technical failure of the power operated door which would place passengers at risk.
- Technical failure of the central door locking system.

3.12.5. Braking System

Any irregularity in a vehicle or train braking system.

Includes:

- Sticking brakes.
- Brake/vacuum hose failures.

3.12.6. Other Rolling stock Irregularity

Any other rolling stock irregularity.

Includes:

- Dragging equipment (rolling stock components dragging or hanging dangerously).
- Other vehicle structural defects.
- Any severe electrical arcing or fusing in or on any part of a train.
- Faulty design, construction or operation of rolling stock.
- Locomotive remote controlling equipment irregularities.
- Scale build up on wheels and flat wheels.

Excludes:

- Any irregularity with on track equipment for automatic train protection or warning system equipment.(Refer Section to 3.18)

3.13. Electrical Infrastructure Irregularity

Any irregularity in an electrical system or component that results in an electrical accident or endangers or has the potential to endanger the safety of railway operations, people and or/premises.

Includes:

- The fixed electrical equipment of an electrified system.

Excludes:

- Irregularities detected and corrected under normal maintenance programs.(Not Notifiable)

3.13.1. Overhead Traction Supply

Defects in electrical supply or overhead wiring sufficient to cause an electrical fault or dewirement.

Includes:

- Dewirement or entanglements.
- Short circuits.
- Failure of overhead line equipment.

Excludes:

- Simple electrical failures, which include short circuits or tripping of circuit breakers (are not classifiable unless for other reasons such as fire, are classifiable under another category).
- Occurrences in a depot that do not affect the running line.
- Loss of power from the utility.

3.13.2. Other Electrical Infrastructure Irregularity

Anything that is not classifiable under one of the above categories.

Includes:

- Wiring other than overhead traction equipment that has the potential to cause an accident to a train or endanger persons.
- Faulty design, construction or operation of electrical infrastructure.

3.14. Fire

A fire affecting rail infrastructure or rolling stock which endangers or has the potential to endanger the safety of railway operations, people and/or premises.

Includes:

- Occurrences where smoke/fumes penetrate passenger accommodation, necessitating evacuation of the passengers from the vehicle(s) concerned where there is no evidence of actual fire.
- Severe electrical arcing or fusing where there is evidence of fire damage.
- Dangerous goods fires.
- Fires that lead to railway operations being disrupted or closed as a precautionary measure.

Excludes:

- Terrorism events. (refer section 3.20.3.1)

3.14.1. On Train

A fire on rolling stock.

Includes:

- Fire in or on a train whether in motion or not.
- Occurrences where smoke/fumes penetrate passenger accommodation, necessitating evacuation of the passengers from the vehicle(s) concerned where there is no evidence of actual fire.

Excludes:

- Train fires which affect station operations (Refer Section 3.14.3).

3.14.1.1. Rolling Stock

Fires associated with rolling stock failure or defect.

Includes:

- Fires on traction units.
- Fires in driver's cabs.
- Bearing friction fires on rolling stock.

3.14.1.2. Passenger or Load Related

Fires associated with any other activity not associated with rolling stock operation or movement.

Includes:

- Fires associated with loads.
- Rubbish fires in passenger carriages, seat fires.

3.14.2. Lineside Fires

A fire on or adjacent to the railway corridor.

Includes:

- Fires on properties adjacent to the railway.
- Any fire affecting the track, signalling, communication and/or electrical systems of a railway.
- Occurrences where smoke/fumes cause disruption to the operation of trains.
- Any fire in sleepers.

Excludes:

- Lineside fires which affect station operations. (Refer Section 3.14.3)

3.14.2.1. Safety Related Infrastructure

Fires associated with safety critical rail infrastructure.

Includes:

- Fires in signal boxes, sleeper fires etc.

3.14.2.2. Other Lineside Fires

Fires associated with non-safety critical infrastructure.

Includes:

- Fires in trackside vegetation, material stockpiles etc.
- Fires caused by railway operations which endanger the safety of the public.

3.14.3. Station/Terminal Fires

A fire in or adjacent to railway premises that affects station and terminal operations..

Includes:

- Fire in or adjacent to a station or terminal infrastructure.
- Any fire affecting the permanent way or works of a railway system that necessitate the suspension of services at, or closure of any part of a station or terminal.
- Fires in escalators, elevators and stair wells.
- Occurrences where smoke/fumes necessitate evacuation of the passengers from any part of a station where there is no evidence of actual fire.

3.15. Explosion

An explosion affecting rail infrastructure or rolling stock or that has the potential to affect the safety of railway operations, people and/or premises.

Includes:

- Explosion in or on a train whether in motion or not.
- Explosion in or on railway infrastructure.
- Explosion on properties adjacent to the railway which causes damage or which has the potential to affect the running of a railway, even though they may occur in commercial premises.
- Explosion of boiler or crankcase.
- Explosion of dangerous goods.
- Detonation of material carried by or transported by rail; detonations resulting from mishaps during loading or unloading operations, and those caused by fire aboard on track equipment.

Excludes:

- An explosion associated with Terrorism/Sabotage. (Refer Section 3.20.3)

3.16. Suspected Suicide or Attempted Suicide

Any suspected or attempted suicide.

3.16.1. Suspected Suicide

Any suspected suicide that takes place on or from railway property.

Includes:

- Struck by train.
- Jumping from railway structure.
- Jumping from structure onto railway property.

3.16.1.1. Struck by Train

Any person who appears to have deliberately placed themselves in a situation to be struck by a train.

3.16.1.2. Other Suspected Suicide

Any suspected suicide that is not classifiable under the above subcategory.

3.16.2. Attempted Suicide

Any person who unsuccessfully attempts to take their own life on railway property.

3.16.2.1. Struck by Train

Any person who appears to have deliberately placed themselves in a situation to be struck by a train.

3.16.2.2. Other Attempted Suicide

Any attempted suicide that is not classifiable under the above subcategory.

3.17. Drug or Alcohol Irregularity

Any case where a rail safety worker returns a positive result to a test designed to determine whether the level of alcohol or other drug exceeds approved levels or the rail safety worker refuses to be tested.

Includes:

- Positive results from random testing .

3.18. Train Warning and Enforcement Systems Irregularity

Any failure of installed train monitoring, warning and enforcement systems to detect and act on alarm situations.

3.18.1. Warning Systems Irregularity

Any failure of installed train monitoring or warning systems to detect and act on alarm situations.

Includes:

- Failure of equipment such as Hot Box Detectors, Hot Wheel Detectors, Acoustic Bearing Detectors to detect defects on the passing train.
- Failure of Out of Gauge Detectors and Weighbridges to detect load irregularities.
- Failure of Dragging Equipment Detectors to detect dragging chains.
- Failure of track flood warning, rock slide detection and other installed infrastructure monitoring systems to detect unsafe conditions.

Excludes:

- Failure of the communications system links. (Refer Section 3.19)

3.18.2. Enforcement Systems Irregularity

Any failure of installed enforcement systems to detect and act on an alarm or unsafe situations for the operating train.

Includes:

- Failures of installed systems such as ATP, TPWS, Train Stops, Vigilance and Deadman's Handle to stop trains in potentially dangerous situations.
- Isolation of such systems or parts of such systems to enable train operations to continue in cases where the equipment malfunctions.

3.19. Communications System Failure

Any deficiency or failure of a communications system (voice or data) that prevents the timely transmission of safety critical information.

Includes:

- Deficiencies of radio and telephone equipment or systems that prevents transmissions of warnings.
- Failure of a communication system that prevents transmissions of alarms from train monitoring and wayside detectors.
- Failure of a communication system that prevents transmissions of information during emergencies.

Excludes:

- Failure of communications equipment that has no critical effect on the safe operation of the railway, for example, where procedures provide for the continuance of safe operations.
- Failure of a communication system that prevent the issue of proceed authorities or the display of a proceed signal. (Refer Section 3.6)
- Failure of hardware of the wayside detection systems. (Refer Section to 3.19)
- Failure of in cab signalling. (Refer Section to 3.6.2)

3.20. Railway Network Security

Unlawful activity on railway property that endangers or has the potential to endanger the safety of railway operations, people and or/premises.

Excludes:

- Activity associated with a greater adverse safety outcome, e.g., trespasser struck by train. (to be coded under Collision: Collision with Person, Refer Sections 3.2.1.3, 3.2.2.3)
- Person illegally using a level crossing. (Refer Section 3.3.2)

3.20.1. Railway Trespass

An unlawful and unwarranted intrusion upon railway premises, without evidence of any further criminal intent.

Includes:

- Train surfing / out riding. (unless falls – Refer Section 3.7.1)
- Member of the public crossing track except at a designated crossing point.
- Illegal entry into secured areas.

Excludes:

- Trespass associated with further malicious activity, e.g. vandalism. (Refer Section 3.20.4)
- Theft of security-sensitive goods. (Refer Section 3.20.5)
- Crossing illegally at a designated crossing point. (Refer Section 3.3.2, 3.3.6)
- Trespasser slips trips or falls to or from train. (Refer Section 1.7.3)

3.20.1.1. Near Miss With Trespasser

Any near miss with a trespasser.

Includes:

- Where the driver had insufficient time to take such emergency action.

Excludes:

- Near miss at a level crossing. (Refer Section 3.3)

3.20.1.2. Other Railway Trespass

Trespass other than a Near Miss.

3.20.2. Alleged Assault

Any occurrence where it is alleged that a person deliberately inflicted an injury on any other person on railway premises.

Includes:

- Assault of members of the public.
- Assault of passengers.
- Assault of employees.
- Assault using dangerous items.

Excludes:

- Assault between railway employees that are not rail safety related and do not affect or have the potential to affect the safety of railway operations.

3.20.2.1. On Train

Any assault on board a train.

3.20.2.2. On Platform

Any assault on a platform or at a station.

3.20.2.3. Other Alleged Assault

Anything that is not classifiable under one of the above subcategories.

3.20.3. Terrorism/Sabotage

Any act of terrorism or sabotage that endangers or has the potential to endanger the safety of railway operations, people or premises.

3.20.3.1. Terrorist Act

Any act or suspected act of terrorism or sabotage.

Includes:

- Any fire or explosion set off to cause personal injury/fear, damage to rolling stock or infrastructure, or disruption to railway operations.
- Deliberate release of toxic gas.

Excludes:

- Explosions not associated with terrorism. (Refer Section 3.15)

3.20.3.2. Threat of Terrorist Act

Any threat or suspected threat of terrorism or sabotage.

Includes:

- Threat to sabotage or take violent action.
- Bomb threats.

3.20.3.3. Other Terrorism/Sabotage

Any act of terrorism/sabotage that is not classifiable under one of the above subcategories.

3.20.4. Vandalism

Wilful and unlawful interference, damage or defacement to railway infrastructure or rolling stock.

Excludes:

- Acts of vandalism resulting in a greater adverse safety outcome such as interference with level crossing equipment (Refer Section 3.3.4) or damage to rolling stock, eg. obscuring/damage to driver's windscreen (Refer Section 3.12.6) which effects its safe operation.

3.20.4.1. Object Projected at Train

Objects being thrown or otherwise cast at trains.

Includes:

- Rocks or other projectiles thrown at trains.
- Objects projected by any other means e.g. slingshot, firearm etc.

3.20.4.1.1 Train Struck

Where the train is struck by the projected object.

3.20.4.1.2 Other

Where the projected object does not strike the train or where it is not known whether the object struck the train.

3.20.4.2. Graffiti

Graffiti that has the potential to, or interferes with the safety of railway operations.

Excludes:

- Graffiti which results in a greater adverse safety outcome such as damage to level crossing equipment (Refer Section 3.3.4) or rolling stock (Refer Section 3.12).

3.20.4.3. Other Vandalism

Other acts of vandalism that are not classifiable under one of the above subcategories.

3.20.5. Theft

The unlawful taking or obtaining of rail safety-related equipment or security-sensitive materials.

Includes:

- Theft of safeworking equipment e.g. staffs, tokens, detonators.
- Theft of Security-Sensitive goods.
- Theft of Dangerous Goods.

Excludes:

- Theft which results in a greater adverse outcome (e.g. open container door Refer Section 3.8.1).

3.20.6. Other Railway Network Security

Any railway network security occurrence not classifiable under one of the above subcategories.

Includes:

- Unlawful use of railway equipment.

3.21. Runaway

The uncontrolled movement of an unattended train or item of rolling stock that endangers or has the potential to endanger the safety of railway operations.

Excludes:

- Runaways resulting in a greater adverse safety outcome such as Collision (Refer Section 3.2), Derailment (Refer Section 3.1), Proceed Authority Exceeded (Refer Section 3.5.3), SPAD (Refer Section 3.4.5) which effects its safe operation.

4. FURTHER INFORMATION

OC-G1 was developed by a working group on behalf of the Rail Safety Regulators Panel (RSRP). The working group comprises representatives from each state and territory regulator and representatives from the rail industry.

The OC-G1 scheme is periodically reviewed to ensure:

- (i) Categorisation reflects current rail technologies and practice and is matched to information needs of rail safety management;
- (ii) Wherever possible, categorisation is consistent with related occurrence definition and classification schemes; and
- (iii) Definitions are clear and concise to ensure consistency in application.

Users of this guide are encouraged to make suggestions for improvements or advise of inaccuracies, ambiguities or omissions. Suggestions should, in the first instance, be referred to the Regulator in your jurisdiction.

5. APPENDICES:

Appendix A – Occurrence Classification System

Appendix B - Table 1: Examples showing Determination of Top Event under OC-G1

Appendix C – Comparison Table (with revision 1, August 2004)

APPENDIX A - OCCURRENCE CLASSIFICATION SYSTEM

Reference	Category	Sub Category Level 1	Sub Category Level 2	Sub Category Level 3
1	Derailment			
1.1		Running Line Derailment		
1.2		Yard Derailment		
2	Collision			
2.1		Running Line Collision		
2.1.1			Between trains	
2.1.2			With rolling stock	
2.1.3			With person not on a level crossing	
2.1.4			With animal	
2.1.5			With infrastructure	
2.1.6			With road vehicle not on a level crossing	
2.1.7			With obstruction	
2.1.7.1				Natural object
2.1.7.2				Railway related object
2.1.7.3				Other object
2.1.8			Other running line collision	
2.2		Yard Collision		
2.2.1			Between trains	
2.2.2			With rolling stock	
2.2.3			With person	
2.2.4			With animal	
2.2.5			With infrastructure	
2.2.6			With road vehicle not on a level crossing	
2.2.7			With obstruction	
2.2.7.1				Natural object
2.2.7.2				Railway related object
2.2.7.3				Other object
2.2.8			Other yard	

Reference	Category	Sub Category Level 1	Sub Category Level 2	Sub Category Level 3
			collision	
3	Level Crossing Occurrence			
3.1		Collision with Road Vehicle		
3.1.1			At crossings with active warning device	
3.1.2			At crossings with passive warning device	
3.1.3			At unprotected level crossings	
3.2		Collision with person		
3.2.1			At crossings with active warning device	
3.2.2			At crossings with passive warning device	
3.2.3			At unprotected level crossings	
3.3		Level crossing equipment failure/defect		
3.4		Level crossing equipment damage/interference		
3.5		Near miss with road vehicle		
3.5.1			At crossings with active warning device	
3.5.2			At crossings with passive warning device	
3.5.3			At unprotected level crossings	
3.6		Near miss with person		
3.6.1			At crossings with active warning device	
3.6.2			At crossings with passive warning device	
3.6.3			At unprotected level crossings	
3.7		Other level crossing occurrence		
4	Signals Passed at Danger			

Reference	Category	Sub Category Level 1	Sub Category Level 2	Sub Category Level 3
4.1		Driver misjudged		
4.2		Completely missed while running		
4.3		Starting against signal		
4.4		Signal restored as train approached		
4.5		Other signal passed at danger		
5	Proceed Authority Exceeded			
5.1		Driver misjudged		
5.2		Completely missed while running		
5.3		Other proceed authority exceeded		
6	Signalling And Other Proceed Authority System Irregularities			
6.1		Wayside signalling system irregularities		
6.2		In-cab signalling system irregularities		
6.3		Token system irregularities		
6.4		Communications based train authority system irregularities		
6.5		Other signalling or proceed authority system irregularity		
7	Slip, Trip or Fall			
7.1		To/from train		
7.2		Between platform and train		
7.3		On train		
7.4		On track		
7.5		On/from platform/concourse		
7.6		On/from escalator/lift		
7.7		On/from stairs/ramps		
7.8		From structure		
7.9		Caught in train doors		
7.10		Other slip trip or fall		
8	Load Irregularity			
8.1		Door open		
8.2		Out of gauge		
8.3		Load shift		
8.4		Uneven distribution of		

Reference	Category	Sub Category Level 1	Sub Category Level 2	Sub Category Level 3
		load		
8.5		Loose load fastening		
8.6		Other load irregularity		
9	Dangerous Goods			
9.1		On train		
9.2		Off train		
10	Safeworking Rule or Procedure Breach			
10.1		Wayside signalling system procedure/rule breach		
10.2		In - cab signalling system procedure/rule breach		
10.3		Token based system procedure/rule breach		
10.4		Communication based system procedure/rule breach		
10.5		Track work procedure/rule breach		
10.6		Other safeworking rule or procedure breach		
11	Track and Civil Infrastructure Irregularity			
11.1		Broken rail		
11.1.1			Detected during train operation	
11.1.2			Maintenance inspection detected	
11.2		Buckled track		
11.3		Spread track		
11.4		Points irregularity		
11.5		Track Obstruction		
11.5.1			Natural object	
11.5.2			Railway-related object	
11.5.3			Other object	
11.6		Civil infrastructure irregularity		
11.7		Other Track infrastructure irregularity		
12	Rolling stock Irregularity			
12.1		Train parting		
12.2		Wheel/axle failure		
12.3		Defective bearing		

Reference	Category	Sub Category Level 1	Sub Category Level 2	Sub Category Level 3
12.4		Faulty passenger train door		
12.5		Braking system		
12.6		Other rolling stock irregularity		
13	Electrical Infrastructure Irregularity			
13.1		Overhead traction supply		
13.2		Other electrical infrastructure irregularity		
14	Fire			
14.1		On train		
14.1.1			Rolling stock	
14.1.2			Train operations	
14.2		Lineside fires		
14.2.1			Safety related infrastructure	
14.2.2			Other lineside fires	
14.3		Station/terminal fires		
15	Explosion			
16	Suspected Suicide or Attempted Suicide			
16.1		Suspected suicide		
16.1.1			Struck by train	
16.1.2			Other suspected suicide	
16.2		Attempted Suicide		
16.2.1			Struck by train	
16.2.2			Other attempted suicide	
17	Alcohol or drugs Irregularity			
18	Train Warning and Enforcement System Irregularity			
18.1		Warning system irregularity		
18.2		Enforcement system irregularity		
19	Communications System Failure			
20	Railway network security			
20.1		Railway trespass		
20.1.1			Near miss	
20.1.2			Other railway	

Reference	Category	Sub Category Level 1	Sub Category Level 2	Sub Category Level 3
			trespass	
20.2		Alleged Assault		
20.2.1			On a train	
20.2.2			On a platform	
20.2.3			Other alleged assault	
20.3		Terrorism/Sabotage		
20.3.1			Terrorist act	
20.3.2			Threat of terrorist act	
20.3.3			Other terrorism/sabotage	
20.4		Vandalism		
20.4.1			Object projected at train	
20.4.2			Graffiti	
20.4.3			Other vandalism	
20.5		Theft		
20.6		Other railway network security		
21	Runaway			

APPENDIX B: Table 1: Examples Showing Determination of Top Event under OC-G1

Occurrence Example	Category Relevant to Chain of Events	Top Event OC-G1 Category	Factors Considered (and assumptions made)
Train derailed on running line due to broken rail	Track & Civil Infrastructure Irregularity: Broken Rail Derailment: Running Line Derailment	Derailment: Running Line Derailment	The broken rail represents an adverse outcome (fault/damage) of an earlier failure. However, the damage associated with the broken rail is less significant than the assumed amount of damage (rolling stock and track) associated with the derailment
Train strikes road vehicle that is fouling running line. Train derailed and strikes train on adjacent running line. Multiple injuries and fatalities reported (Great Heck, UK, 28 Feb 2001)	Collision: Running Line Collision: with Road Vehicle Not On a Level Crossing Derailment: Running Line Derailment Collision: Running Line Collision: between Trains	Collisions: Running Line Collision: Between Trains	The collision between trains is deemed the top event on the assumption that the greatest adverse outcome (i.e. majority of injuries and fatalities) were caused at the point when the two trains collided
During yard shunting a train derailed all wheels and then strikes a stanchion causing loss of OHW power. The lead locomotive sustains coupling damage	Derailment: Yard Derailment Collision: Yard Collision: with Infrastructure Electrical Infrastructure Irregularity: Overhead Traction Supply Rolling stock Irregularity: Other Rolling stock Irregularity	Collision: Yard Collision: with Infrastructure	The collision of the train with infrastructure (stanchion) is deemed the top event on the assumption that this event caused the most damage (damage to infrastructure and to the train)
Load shift on freight train forces wagon door to open and swing out of gauge. Load and door are resecured without further incident	Load Irregularity: Load Shift Load Irregularity: Door Open Load Irregularity: Out of Gauge	Load Irregularity: Out Of Gauge	There were no human or property consequences associated with this incident. Of the three events, the door swinging to an out of gauge position is the top event on the basis it represented the greatest accident potential (collision) of the three incidents
Driver records a positive alcohol reading after misjudging train stopping distance and passing signal at stop	Drug or Alcohol Irregularity SPAD: Driver Misjudged	SPAD: Driver Misjudged	There were no human or property consequences associated with this incident. The SPAD is deemed the top event on the basis it represented the greatest accidental potential (train violated the limit of its authorised movement)
A passenger standing on the platform falls to the tracks and is struck by passing train. Admitted to hospital	Slip Trip or Fall: On/From Platform / Concourse Collision: Running Line Collision: with Person Not On A Level Crossing	Collision: Running Line Collision: with Person Not On A Level Crossing	The train striking the person is the top event on the assumption that it was this specific event that caused the serious injury
Report of signal incorrectly set at stop. Inspection reveals a piece of ballast had been wedged under the train stop	Vandalism Signalling and Other Proceed Authority Systems Irregularity: Wayside Signalling Systems Irregularity	Vandalism	The signal failed safe which is not a signal irregularity under OC-G1. In this case the top event is the only event under OC-G1, that being <i>Vandalism</i>
School children interfere with operation of automatic doors on passenger train – doors unable to close fully as a result	Vandalism Rolling stock Irregularity: Faulty Passenger Train Door	Rolling stock Irregularity: Faulty Passenger Train Door	Vandalism / interference is the cause of the door fault. However, the faulty door is deemed the top event as it represents an adverse outcome (damage and potential for fall)
During yard shunting controlled by radio and hand signals, wagons ran through incorrectly set points, derailed, struck a yard signal and came to rest fouling the mainline.	Safeworking Rule or Procedure Breach: Communications Based System Procedure/Rule Breach Derailment: Running Line Derailment Collision: Yard Collision: with Infrastructure	Derailment: Running Line Derailment	The collision with Infrastructure is an adverse outcome. However the running line derailment is deemed the top event on the basis that the accident potential of the running line derailment is of greater significance than the damage associated with the collision.
Brake fault causes passenger service to overrun platform. Train stops suddenly causing injuries to passengers.	Rolling stock Irregularity: Braking System Slip Trip or Fall: On Train	Slip, Trip, Fall: On Train	The brake fault is an irregularity that led to the slip, trip and fall. The passengers falling is deemed the top event on the basis it caused (or had potential to cause) casualties
Train 123 runs through and damages points. Points booked out of use pending repairs	Safeworking Irregularity: Other Safeworking Rule or Procedure Breach Track and Civil Irregularity: Points Irregularity	Track and Civil Irregularity: Points Irregularity	The failure to set points for the train direction is a safeworking irregularity under OC-G1. However, the points irregularity is deemed the top event because damage occurred and there was potential for a more serious outcome e.g. a derailment.

Occurrence Example	Category Relevant to Chain of Events	Top Event OC-G1 Category	Factors Considered (and assumptions made)
Stone smashes cab window, injuring driver. Driver admitted to hospital for treatment to cuts	Vandalism: Object Projected at Train: Train Struck	Vandalism: Object Projected at Train: Train Struck	The act of stone throwing is coded as collision with missile assuming the intent was to damage the train rather than to injure the driver. The collision with missile is deemed the top event on the basis that it caused an adverse outcome (casualty)

APPENDIX C - Table 2: Comparison with previous version (revision 1, August 2004)

The following table details the equivalent classifications and conversion required between version 1 of ON-S1 (dated August 2004) and the version described in this manual.

OC-G1 Version 1			Correspondence with ON-S1 Revision 1 (August 2004)		Comment
Section	Title	Status	Section	Title	
1	DERAILMENT				
1.1	Running Line Derailment	R	2.1.1	Derailment - Running line Derailment	Part (excluding derailments on balloon loops during loading/unloading) Part (Derailments in yards that interfere with running lines; derailments on closed sections of track that interfere with non-closed running lines) Part (Derailments on balloon loops during loading/unloading) Part (excluding derailments in yards that interfere with running lines and derailments on closed sections of track that interfere with non-closed running lines)
			2.1.2	Derailment - Yard Derailment	
1.2	Yard Derailment	R	2.1.1	Derailment - Running line Derailment	
			2.1.2	Derailment - Yard Derailment	
2	COLLISION				
2.1	Running Line Collision				
2.1.1	Between Trains	N	2.2.1	Collision - Collision with Train	Part (on running lines as defined in OC-G1)
2.1.2	with Rolling stock	N	2.2.2	Collision - Rollingstock	Part (on running lines as defined in OC-G1)
2.1.3	with Person Not On A Level Crossing	N	2.2.3	Collision - Person	Part (on running lines as defined in OC-G1)
2.1.4	with Animal	N	2.2.4	Collision - Animal	Part (on running lines as defined in OC-G1)
2.1.5	with Infrastructure	N	2.2.5	Collision - Infrastructure	Part (on running lines as defined in OC-G1)
2.1.6	with Road Vehicle not on a Level Crossing	N	2.2.8	Collision - Road Vehicle	Part (on running lines as defined in OC-G1)

OC-G1 Version 1			Correspondence with ON-S1 Revision 1 (August 2004)		Comment
Section	Title	Status	Section	Title	
2.1.7	with Obstruction				
2.1.7.1	Natural Object	N	2.2.5	Collision - Obstruction	Part (objects of type "natural" on running lines as defined in OC-G1)
2.1.7.2	Railway Related Object	N	2.2.5	Collision - Obstruction	Part (objects of type "railway related" on running lines as defined in OC-G1)
2.1.7.3	Other Object	N	2.2.5	Collision - Obstruction	Part (objects other than "natural" and "railway related" on running lines as defined in OC-G1)
2.1.8	Other Running Line Collision	N	2.2.9	Collision - Other	Part (in yards as defined in OC-G1)
2.2	Yard Collision				
2.2.1	Between Trains	N	2.2.1	Collision - Collision with Train	Part (in yards as defined in OC-G1)
2.2.2	with Rolling stock	N	2.2.2	Collision - Rollingstock	Part (in yards as defined in OC-G1)
2.2.3	with Person	N	2.2.3	Collision - Person	Part (in yards as defined in OC-G1)
2.2.4	with Animal	N	2.2.4	Collision - Animal	Part (in yards as defined in OC-G1)
2.2.5	with Infrastructure	N	2.2.5	Collision - Infrastructure	Part (in yards as defined in OC-G1)
2.2.6	with Road Vehicle not on a Level Crossing	N	2.2.8	Collision - Road Vehicle	Part (in yards as defined in OC-G1)
2.2.7	with Obstruction				
2.2.7.1	Natural Object	N	2.2.5	Collision - Obstruction	Part (objects of type "natural" in yards as defined in OC-G1)
2.2.7.2	Railway Related Object	N	2.2.5	Collision - Obstruction	Part (objects of type "railway related" in yards as defined in OC-G1)
2.2.7.3	Other Object	N	2.2.5	Collision - Obstruction	Part (objects other than "natural" and "railway related" in yards as defined in OC-G1)
2.2.8	Other Yard Collision	N	2.2.9	Collision - Other	Par (on running line as defined in OC-G1)

OC-G1 Version 1			Correspondence with ON-S1 Revision 1 (August 2004)		Comment
Section	Title	Status	Section	Title	
3	LEVEL CROSSING OCCURRENCE				
3.1	Collision with Road Vehicle				
3.1.1	At Crossing with Active Warning Devices	U	2.3.1.1	Level Crossing Occurrence - Road Vehicle Collision - Crossing with Active Warning Devices	Direct Correspondence
3.1.2	At Crossing with Passive Warning Devices	U	2.3.1.2	Level Crossing Occurrence - Road Vehicle Collision - Crossing with Passive Warning Devices	Direct Correspondence
3.1.3	At Unprotected Level Crossing	U	2.3.1.3	Level Crossing Occurrence - Road Vehicle Collision - Unprotected Level Crossing	Direct Correspondence
3.2	Collision with Person				
3.2.1	At Crossing with Active Warning Devices	U	2.3.2.1	Level Crossing Occurrence - Collision with Person - Crossing with Active Warning Devices	Direct Correspondence
3.2.2	At Crossing with Passive Warning Devices	U	2.3.2.2	Level Crossing Occurrence - Collision with Person - Crossing with Passive Warning Devices	Direct Correspondence
3.2.3	At Unprotected Level Crossing	U	2.3.2.3	Level Crossing Occurrence - Collision with Person - Unprotected Level Crossing	Direct Correspondence
3.3	Level Crossing Equipment Failure/Defect	U	2.3.3	Level Crossing Occurrence - Level Crossing Equipment Failure/Defect	Direct Correspondence
3.4	Level Crossing Equipment Damage/Interference	N	2.3.4	Level Crossing Occurrence - Other	Part (third party damage and interference)
3.5	Near Miss with Road Vehicle				
3.5.1	At Crossing with Active Warning Devices	N	2.3.4	Level Crossing Occurrence - Other	Part (near miss with vehicle - active)
3.5.2	At Crossing with Passive Warning Devices	N	2.3.4	Level Crossing Occurrence - Other	Part (near miss with vehicle - passive)
3.5.3	At Unprotected Level Crossing	N	2.3.4	Level Crossing Occurrence - Other	Part (near miss with vehicle - unprotected)
3.6	Near Miss with Person				

OC-G1 Version 1			Correspondence with ON-S1 Revision 1 (August 2004)		Comment
Section	Title	Status	Section	Title	
3.6.1	At Crossing with Active Warning Devices	N	2.3.4	Level Crossing Occurrence - Other	Part (near miss with vehicle - active)
3.6.2	At Crossing with Passive Warning Devices	N	2.3.4	Level Crossing Occurrence - Other	Part (near miss with vehicle - passive)
3.6.3	At Unprotected Level Crossing	N	2.3.4	Level Crossing Occurrence - Other	Part (near miss with vehicle - unprotected)
3.7	Other Level Crossing Occurrence	R	2.3.4	Level Crossing Occurrence - Other	Part (other than near miss and interference/damage)
4	SIGNAL PASSED AT DANGER				
4.1	Driver Misjudged	R	2.4.1	Signal Passed at Danger - Driver Misjudged	Part (excludes SPADs associated with rollingstock irregularities; excludes unauthorised passing of stop boards, etc)
4.2	Completely Missed While Running	R	2.4.2	Signal Passed at Danger - Completely Missed While Running	Part (excludes unauthorised passing of stop boards, etc)
4.3	Starting Against Signal	U	2.4.4	Signal Passed at Danger - Starting Against Signal	Direct Correspondence
4.4	Signal Restored as Train Approached	U	2.4.3	Signal Passed at Danger - Signal Restored as Train Approached	Direct Correspondence
4.5	Other Signal Passed at Danger	R	2.4.1	Signal Passed at Danger - Driver Misjudged	Part (any SPADs associated with rollingstock irregularities)
			2.4.5	Signal Passed at Danger - Other	Direct Correspondence
5	PROCEED AUTHORITY EXCEEDED				
5.1	Driver Misjudged	R	2.5.1	Proceed Authority Exceeded - Driver Misjudged	Clarified to exclude exceedences associated with rollingstock irregularities.
5.2	Completely Missed While Running	U	2.5.2	Proceed Authority Exceeded - Completely Missed While Running	Direct Correspondence
5.3	Other Proceed Authority Exceeded	N	2.5.1	Proceed Authority Exceeded - Driver Misjudged	Part (exceedences associated with rollingstock irregularities and runaways)
6	SIGNALLING AND OTHER PROCEED AUTHORITY SYSTEM IRREGULARITY				
6.1	Wayside Signalling System Irregularity	N	2.6.1	Signal Irregularity - Wrong Side Failure	Part (Wayside signalling systems or equipment defined in OC-G1)

OC-G1 Version 1			Correspondence with ON-S1 Revision 1 (August 2004)		Comment
Section	Title	Status	Section	Title	
6.2	In-Cab Signaling System Irregularity	N	2.6.2	Signal Irregularity - Other	Part (Wayside signalling systems or equipment defined in OC-G1)
			2.11.4	Track and Civil Infrastructure Irregularity - Points Failure	Part (malfunction of point motors)
			2.10.1	Safeworking Irregularity - System Failure	Part (In-Cab signalling system irregularity)
			2.12.6	Rollingstock Irregularity - Other	Part (In-Cab signaling system irregularity)
			2.10.1	Safeworking Irregularity - System Failure	Part (token based system irregularity)
6.3	Token-Based System Irregularity	N	2.10.1	Safeworking Irregularity - System Failure	Part (communication-based train authority system irregularity)
6.4	Communication-Based Train Authority System Irregularity	N	2.10.1	Safeworking Irregularity - System Failure	Part (communication-based train authority system irregularity)
6.5	Other Signaling and Proceed Authority System Irregularity	N			Not previously classified
7	SLIP, TRIP OR FALL				
7.1	To/From Train	U	2.7.1	Slip, Trip or Fall - From Train	Direct Correspondence
7.2	Between Platform and Train	U	2.7.2	Slip, Trip or Fall - Between Platform and Train	Direct Correspondence
7.3	On Train	U	2.7.3	Slip, Trip or Fall - On Train	Direct Correspondence
7.4	On Track	R	2.7.4	Slip, Trip or Fall - On Track	Clarified that falls from platform to track coded as On/From Platform/Concourse
7.5	On/From Platform/Concourse	R	2.7.5	Slip, Trip or Fall - On Platform/Concourse	Clarified to include falls originating from platform/concourse
7.6	On/From Escalator/Lift	R	2.7.6	Slip, Trip or Fall - On Escalator/Lift	Clarified to include falls originating from escalators/lift
7.7	On/From Stairs/Ramp	R	2.7.7	Slip, Trip or Fall - On Stairs	Clarified to Include falls associated with ramps; includes falls originating from stairs and ramps
7.8	From Structure	U	2.7.8	Slip, Trip or Fall - From Structure	Direct Correspondence
7.9	Caught in Train Doors	U	2.7.9	Slip, Trip or Fall - Caught in Train Doors	Direct Correspondence

OC-G1 Version 1			Correspondence with ON-S1 Revision 1 (August 2004)		Comment
Section	Title	Status	Section	Title	
7.10	Other Slip Trip or Fall	U	2.7.10	Slip, Trip or Fall - Other	Direct Correspondence
8	LOAD IRREGULARITY				
8.1	Door Open	R	2.8.1	Loading Irregularity - Door Open	Part (Open door incidents not leading to loss of load)
8.2	Out of Gauge	R	2.8.2	Loading Irregularity - Out of Gauge	Clarified (includes authorised loads that have shifted to exceed approved dimensions)
8.3	Load Shift	R	2.8.3	Loading Irregularity - Load Shift	Direct Correspondence
			2.8.1	Loading Irregularity - Door Open	Part (Door open incidents leading to loss of load)
8.4	Uneven Distribution of Load	U	2.8.4	Loading Irregularity - Uneven Distribution of Load	Direct Correspondence
8.5	Loose Load Fastening	N	2.8.5	Loading Irregularity - Other	Part (loose load fastenings)
8.6	Other Load Irregularity	R	2.8.5	Loading Irregularity - Other	Part (not including loose load fastenings)
9	DANGEROUS GOODS				
9.1	On Train	R	2.9.1	Dangerous Goods - On Train	Part (not theft, not explosions not associated with terrorism)
9.2	Off Train	R	2.9.2	Dangerous Goods - Off Train	Part (not theft, not explosions not associated with terrorism)
10	SAFeworking RULE OR PROCEDURE BREACH				
10.1	Wayside Signalling System Procedure/Rule Breach	N	2.10.2	Safeworking Irregularity - Human Failure	Part (wayside signalling system related)
10.2	In-Cab Signalling System Procedure/Rule Breach	N	2.10.2	Safeworking Irregularity - Human Failure	Part (in-cab signalling system related)
10.3	Token-Based System Procedure/Rule Breach	N	2.10.2	Safeworking Irregularity - Human Failure	Part (token-based system related)
10.4	Communication-Based System Procedure/Rule Breach	N	2.10.2	Safeworking Irregularity - Human Failure	Part (communication system related)

OC-G1 Version 1			Correspondence with ON-S1 Revision 1 (August 2004)		Comment
Section	Title	Status	Section	Title	
10.5	Track Work Procedure/Rule Breach	N	2.10.2	Safeworking Irregularity - Human Failure	Part (track work related)
10.6	Other Safeworking Rules or Procedures Breach	N	2.10.2	Safeworking Irregularity - Human Failure	Part (not classified elsewhere under OC-G1)
11	TRACK AND CIVIL INFRASTRUCTURE IRREGULARITY				
11.1	Broken Rail				
11.1.1	Detected Outside of Maintenance Inspections	R	2.11.1	Track and Civil Infrastructure Irregularity - Broken Rail	Part (running line only)
11.1.2	Maintenance Inspection Detected	N			Not previously classified
11.2	Misaligned Track	R	2.11.2	Track and Civil Infrastructure Irregularity - Buckled Track	Part (running line only)
11.3	Spread Track	R	2.11.3	Track and Civil Infrastructure Irregularity - Spread Track	Part (running line only)
11.4	Points Irregularity	R	2.11.4	Track and Civil Infrastructure Irregularity - Points Failure	Part (points irregularities not associated with malfunction of point motors)
			2.10.2	Safeworking Irregularity - Human Failure	Part (safeworking irregularities resulting in point run-throughs)
11.5	Track Obstruction				
11.5.1	Natural Object	N	2.11.5	Track and Civil Infrastructure Irregularity - Other	Part (track obstruction with object of type "natural")
11.5.2	Railway-Related Object	N	2.11.5	Track and Civil Infrastructure Irregularity - Other	Part (track obstruction with object of type "railway related")
11.5.3	Other Object	N	2.11.5	Track and Civil Infrastructure Irregularity - Other	Part (track obstruction with object of type not "natural" and not "railway related")
11.6	Civil Infrastructure Irregularity	N	2.11.5	Track and Civil Infrastructure Irregularity - Other	Part (civil infrastructure irregularities)
11.7	Other Track Infrastructure Irregularity	N	2.11.1	Track and Civil Infrastructure Irregularity - Broken Rail	Part (other than running lines, not civil infrastructure irregularities)
			2.11.2	Track and Civil Infrastructure Irregularity - Buckled Track	Part (other than running lines, not civil infrastructure irregularities)

OC-G1 Version 1			Correspondence with ON-S1 Revision 1 (August 2004)		Comment
Section	Title	Status	Section	Title	
			2.11.3	Track and Civil Infrastructure Irregularity - Spread Track	Part (other than running lines, not civil infrastructure irregularities)
			2.11.5	Track and Civil Infrastructure Irregularity - Other	Part (not track obstructions, not warning system irregularities, not civil infrastructure irregularities)
12	ROLLINGSTOCK IRREGULARITY				
12.1	Train Parting	U	2.12.1	Rollingstock Irregularity - Train Parting	Direct correspondence
12.2	Wheel/Axle Failure	R	2.12.2	Rollingstock Irregularity - Wheel/Axle Failure	Clarified (excludes scaled and flat wheels)
12.3	Defective Bearing	U	2.12.3	Rollingstock Irregularity - Defective Bearing	Direct correspondence
12.4	Faulty Passenger Train Door	U	2.12.4	Rollingstock Irregularity - Faulty Passenger Train Door	Direct correspondence
12.5	Braking System	U	2.12.5	Rollingstock Irregularity - Braking System	Direct correspondence
12.6	Other Rolling stock Irregularity	R	2.12.6	Rollingstock Irregularity - Other	Clarified (includes scaled and flat wheels)
13	ELECTRICAL INFRASTRUCTURE IRREGULARITY		2.13	Electrical Structure Irregularity	Direct correspondence
13.1	Overhead Traction Supply	U	2.13.1	Overhead Traction Supply	Direct correspondence
13.2	Other Electrical Infrastructure Irregularity	U	2.13.2	Other	Direct correspondence
14	FIRE				
14.1	On Train				
14.1.1	Rolling stock	N	2.14	Fire	Part (rolling stock related not affecting safety of stations; excluding acts of terrorism or sabotage)
14.1.2	Passenger or Load Related	N	2.14	Fire	Part (passenger or load related not affecting safety of stations; ; excluding acts of terrorism or sabotage)
14.2	Lineside Fires				

OC-G1 Version 1			Correspondence with ON-S1 Revision 1 (August 2004)		Comment
Section	Title	Status	Section	Title	
14.2.1	Safety Related Infrastructure	N	2.14	Fire	Part (safety critical lineside infrastructure not affecting safety of stations; excluding acts of terrorism or sabotage) Part (lineside fires not associated with safety critical infrastructure and not affecting safety of stations; excluding acts of terrorism or sabotage)
14.2.2	Other Lineside Fires	N	2.14	Fire	
14.3	Station/Terminal Fires	N	2.14	Fire	
15	EXPLOSION	R	2.15	Explosion	Part (station fires, on-train fires affecting safety of stations, lineside fires affecting safety of stations; excluding acts of terrorism or sabotage) Part (excluding acts of terrorism or sabotage)
16	SUSPECTED SUICIDE OR ATTEMPTED SUICIDE				
16.1	Suspected Suicide				
16.1.1	Struck By Train	U	2.17.1.1	Suspected or Attempted Suicide - Struck By Train	Direct Correspondence
16.1.2	Other Suspected Suicide	U	2.17.1.2	Suspected or Attempted Suicide - Other	Direct Correspondence
16.2	Attempted Suicide				
16.2.1	Struck By Train	U	2.17.2.1	Suspected or Attempted Suicide - Struck By Train	Direct Correspondence
16.2.2	Other Attempted Suicide	U	2.17.2.2	Suspected or Attempted Suicide - Other	Direct Correspondence
17	ALCOHOL OR DRUGS IRREGULARITY	R	2.18	Alcohol or Drugs Irregularity	Part (Rail Safety Workers) Note OC-G1 expanded to include refusals to be tested and positive tests from random testing.
18	TRAIN WARNING AND ENFORCEMENT SYSTEMS IRREGULARITY				
18.1	Warning System Irregularity	N	2.11.5	Safeworking Irregularity - System Failure	Part (warning system irregularities)

OC-G1 Version 1			Correspondence with ON-S1 Revision 1 (August 2004)		Comment
Section	Title	Status	Section	Title	
18.2	Enforcement System Irregularity	N	2.10.1	Track and Civil Infrastructure Irregularity - Other	Part (warning system irregularities)
				Safeworking Irregularity - System Failure	Part (any enforcement system irregularities)
			2.11.5	Rollingstock Irregularity - Other	Part (any enforcement system irregularities)
19	COMMUNICATIONS SYSTEM FAILURE		2.10.1	Safeworking Irregularity - System Failure	Part (communication system failures except for communications-based train authority system which is now classified as Communication-Based Train Authority System Irregularity)
			2.12.6	Rollingstock Irregularity - Other	Part (communication system failures except for communications-based train authority system which is now classified as Communication-Based Train Authority System Irregularity)
20	RAILWAY NETWORK SECURITY				
20.1	Railway Trespass				
20.1.1	Near Miss with Trespasser	N			Not previously classified
20.1.2	Other Railway Trespass	N			Not previously classified
20.2	Alleged Assault				
20.2.1	On Train	R	2.16.1	On Train	Direct correspondence
			2.16.2	On Tram	Direct correspondence
20.2.2	On Platform	U	2.16.3	On Platform	Direct correspondence
20.2.3	Other Alleged Assault	U	2.16.4	Other	Direct correspondence
20.3	Terrorism/Sabotage				

OC-G1 Version 1			Correspondence with ON-S1 Revision 1 (August 2004)		Comment
Section	Title	Status	Section	Title	
20.3.1	Terrorist Act	N	All		Any incident / act associated with terrorist act
20.3.2	Threat of Terrorist Act	N	All		Any incident / act associated with terrorist act
20.3.3	Other Terrorism/Sabotage	N	All		Any incident / act associated with terrorist act
20.4	Vandalism		2.19	Vandalism	
20.4.1	Object Projected at Train				
20.4.1.1	Train Struck	N	2.2.7	Collision with Missile	Part (thrown object striking train)
20.4.1.2	Other	N	2.2.7	Collision with Missile	Part (train not struck or strike not confirmed)
20.4.2	Graffiti	N	2.19	Vandalism	Part (graffiti)
20.4.3	Other Vandalism	R	2.19	Vandalism	Part (vandalism not classified elsewhere in OC-G1)
20.5	Theft	N			Not previously classified
20.6	Other Railway Network Security	N			Not previously classified
21	RUNAWAY	N	2.10.2	Safeworking Irregularity - Human Failure	Part (runaway if with no higher consequence event)
			2.12.5	Rollingstock Irregularity - Braking System	Part (runaway with no higher consequence event)
			2.19	Vandalism	Part (runaway with no higher consequence event)

N=new, U=existing unchanged; C=existing clarified; R=scope revised