RSR 00-3:2016
Edition 1.0

REGULATOR STANDARD

RAILWAY SAFETY MANAGEMENT

Part 3: Occurrence Management

ISBN 978-0620687249

RSR 00-3:2016

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Railway Safety Management

Part 3: Occurrence Management

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This standard was researched and developed by the Railway Safety Regulator's Standards Technical Committee (TC RSR-001) and Working Group on Occurrence Management (WG RSR 00-3).

Edition 1.0: September 2016

ISBN 978-0-620-68724-9

Published by:
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NOTE: It is essential that this document is read together with the *SANS 3000* series of South African National Standards.

Table of changes

Edition and version number	Date	Scope

Acknowledgements

The Railway Safety Regulator wishes to acknowledge the invaluable assistance and contribution of the following organizations during the preparation of this document:

Bombela Operating Company (Pty) Ltd (BOC)

Chemical and Allied Industries' Association (CAIA)

Heritage Railway Association of Southern Africa (HRASA)

Office of Rail Regulation, United Kingdom (ORR)

Passenger Rail Agency of South Africa (PRASA)

Railroad Association of South Africa (RRA)

Railway Safety and Standards Board, United Kingdom (RSSB)

South African Bureau of Standards (SABS)

South African Government, Department of Transport (DoT)

Standards Australia

Transnet Freight Rail (TFR), a division of Transnet SOC Ltd

Foreword

This Regulator Standard was developed and approved by the Railway Safety Regulator's *Technical Committee for the Development of Regulator Standards for Railway Safety* (TC RSR-001) in accordance with the *National Railway Safety Regulator Act* (NRSRA) (Act No. 16 of 2002), the *Safety Standards Development Regulations, 2006* and the *RSR Procedure for the Development of Regulator Standards.*

This document extends and augments the *SANS 3000* series of standards pertaining to railway safety that are published by the South African Bureau of Standards (SABS) on behalf of the Railway Safety Regulator and in particular the *SANS 3000* series of standards. This document should be read in conjunction with those standards.

The *SANS 3000* series of standards presently consists of the following parts, under the general title of *Railway Safety Management*:

SANS 3000-1:2009 – Part 1: General.

SANS 3000-2-1:2008 – Part 2-1: Technical requirements for engineering and operational standards – General.

SANS 3000-2-2:2008 – Part 2-2: Technical requirements for engineering and operational standards – Track, civil and electrical infrastructure.

SANS 3000-2-2-1:2012 – Part 2-2-1: Technical requirements for engineering and operational standards – Track, civil and electrical infrastructure – Level crossings.

SANS 3000-2-3:2008 – Part 2-3: Technical requirements for engineering and operational standards – Rolling stock.

SANS 3000-2-4:2013 – Part 2-4: Technical requirements for engineering and operational standards – Train authorization and control, and telecommunications.

SANS 3000-2-5:2013 – Part 2-5: Technical requirements for engineering and operational standards – Operational principles for safe movement on rail.

SANS 3000-2-6:2013 – Part 2-6: Technical requirements for engineering and operational standards – Interoperability, and interface and intraface management.

SANS 3000-2-4:2011 – Part 4: Human factors management.

The *RSR 00* series of standards presently consists of the following parts, under the general title of *Railway Safety Management:*

RSR 00-2-3-1:2016 – Part 2-3-1: Requirements for systemic engineering and operational safety standards – Rolling stock – Wheels, axles and bearings.

RSR 00-2-7:2016 – Part 2-7: Requirements for systemic engineering and operational safety standards – Railway Stations.

RSR 00-3:2016 – Part 3: Occurrence management (this document).

RSR 00-4-1:2016 – Part 4-1: Human factors management – Fatigue management.

Where reference is made to a specific published date, version or edition of a document that version of the document shall apply. Where reference is made to a document without specifying a date, version or edition, it should be assumed that the latest published version shall apply.

Reference is made in this document in clauses 4.5.7, 4.7.2, 4.7.4, 4.7.5, 5.1.4, 6.5.10, 7.2, 8.4, 9.3, 10.5, 11.3 and 12.2 to the “relevant national railway safety regulator”. In South Africa this shall mean the “Railway Safety Regulator” (RSR) as established in terms of *National Railway Safety Regulator Act* (NRSRA) (Act No. 16 of 2002).

Reference is made in this document in clause 1.1, 1.2 and 4.2.4.4 to the “relevant national legislation”. In South Africa this shall mean the *National Railway Safety Regulator Act* (NRSRA) (Act No. 16 of 2002).

Reference is made in this document in clause 12.1 to the “relevant national legislation”. In South Africa this shall mean the *National Environmental Management Act* (NEMA) (Act No. 107 of 1998).

Annexes A and B are provided for information only.

Introduction

This standard addresses the operator's ability to manage and respond to any railway occurrence. It comprises of four main parts:

a) the contingency plan to manage the occurrence including any hazards at the scene and the immediate consequences of the occurrence;
b) the response to the occurrence and the integration of a contingency plan in conjunction with those of other interested and affected parties including local and provincial authorities, emergency responder companies and others;
c) the recording, reporting and analyses of occurrence data; and
d) the investigation of the circumstances surrounding an occurrence to establish the cause or causes and develop and implement corrective actions.

The operator's Occurrence Management System (OMS) integrates these parts into a cohesive systematic management system which provides a strategic framework for service delivery to demonstrate the operator's capacity to deal with all railway occurrences and their effects. This includes:

a) provision of resources necessary to effectively execute a contingency plan;
b) building of capacity within the operator's organization to deal with occurrences;
c) preventing occurrences from escalating in magnitude;
d) preventing re-occurrences; and
e) the minimization of losses associated with occurrences.

Contents

1 Scope

1.1 This standard provides minimum requirements to railway operators for the establishment and operation of an Occurrence Management System (OMS). This standard should be read and implemented in conjunction with relevant national legislation (see Foreword) and all other applicable standards.

1.2 This standard applies to network, train and station operators, as well as interested and affected parties as contemplated in the relevant national railway safety legislation (see Foreword).

1.3 This standard enhances and extends the requirements and provisions of SANS 3000-1.

1.4 An OMS comprises the provision and management of:

a) reporting, recording and analyses structures;
b) contingency plans;
c) investigations;
d) interoperability, interface and intraface requirements; and
e) mitigation of risks as they pertain to the prevention of occurrences.

1.5 The principles underlying occurrence management are based on risk identification, mitigation, implementation and monitoring before, during and after any railway occurrence or any other event that might give rise to a railway occurrence.

2 Normative references

The following referenced documents are indispensable for the understanding and application of this standard. For undated references, the latest edition of the referenced document (including any amendments) shall apply.

SANS 3000 series (suite) of standards: Railway safety management.

SANS 10228: The identification and classification of dangerous goods for transport.

SANS 10229-1: Transport of dangerous goods – Packaging and large packaging for road and rail transport – Part 1: Packaging.

SANS 10229-2: Transport of dangerous goods – Packaging and large packaging for road and rail transport – Part 2: Large packaging.

SANS 10405: Operational requirements, design and emergency information for the transportation of dangerous goods by rail.

ISO 31000: Risk management – Principles and guidelines.

ISO 31010: Risk management – Risk assessment techniques.

SANS/ISO 10007: Quality management systems – Guidelines for configuration management.

Information on current, valid national (SANS) and international standards (ISO) can be obtained from the South African Bureau of Standards (SABS), Standards Division. Website: *https://www.sabs.co.za.*

Information on current, valid Regulator Standards can be obtained from the Railway Safety Regulator of South Africa. Website: *http://rsr.org.za.*

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this document, the definitions provided in SANS 3000-1 and the following shall apply:

NOTE: In the case of duplicated or differing definitions, the definitions provided here shall prevail for the purposes of this standard.

3.1.1 consequence
Outcome of an action or event.

NOTE 1: There can be more than one consequence arising out of one event.

NOTE 2: Consequences can range from positive to negative.

NOTE 3: Consequences can be expressed qualitatively or quantitatively.

3.1.2 contingency plan
Course of actions developed to mitigate the damage of potential events that could endanger an organization's ability to function and that could result in operational interruption, disruption, loss, emergency or crisis. Such a plan should include measures that provide for the safety of public, personnel, property, facilities and the environment.

3.1.3 disruption
An occurrence, whether anticipated (for example, severe thunderstorm) or unanticipated (for example, a blackout or an earthquake) which disrupts the normal course of operations at a location.

NOTE: A disruption can be caused by either positive or negative factors that will upset normal operations.

3.1.4 emergency
Sudden, urgent and usually unexpected occurrence or event requiring immediate action.

NOTE: An emergency is usually a disruptive event or condition that can often be anticipated or prepared for but seldom exactly foreseen.

3.1.5 event
Presence of a particular set of circumstances.

NOTE 1: The event can be either certain or uncertain.

NOTE 2: The event can be a single occurrence or a series of occurrences.

NOTE 3: The probability associated with the event can be estimated for a given period of time.

3.1.6 hazard
Condition, situation, or system-state that could lead to a railway occurrence or security incident resulting in injury, loss of life, damage to property or the environment (or a combination thereof).

3.1.7 impact
Evaluated consequence of a particular outcome.

3.1.8 impact analysis
A process of analysing all operational functions and the effect that an operational interruption might have upon them.

3.1.9 management
Directors and officers of an organization who can ensure that effective management systems, including financial monitoring and control systems, have been put in place to protect assets, the earning capacity and the reputation of the organization.

3.1.10 mitigation
Limitation of any negative consequence of a particular occurrence.

3.1.11 occurrence
An event that might be, or could lead to, an operational interruption, disruption, loss, emergency or crisis.

3.1.12 organization
Group of people and facilities with an arrangement of responsibilities, authorities and relationships.

NOTE: An organization can be a government or public entity, operator, corporation, firm, enterprise, institution, charity, sole trader or association, or combinations thereof.

3.1.13 probability
Extent to which an event is likely to occur.

NOTE 1: Frequency rather than probability may be used to describe risk.

NOTE 2: Degrees of belief about probability can be chosen as classes, for example:

- rare, unlikely, moderate/likely, almost certain; or
- incredible, improbable, remote, occasional, probable or frequent.

3.1.14 rail incident commander (RIC)
Person appointed at an occurrence scene who is responsible for coordinating all occurrence activities.

3.1.15 rail incident officer (RIO)
Person appointed at an occurrence scene who is responsible for coordinating all departmental occurrence activities in conjunction with the RIC.

3.1.16 railway event
An event that has the potential to result in a railway occurrence or a disruption to railway operations (or both) and includes events relating to track and civil

infrastructure, electrical distribution and overhead traction systems, railway stations, train authorisation and control, telecommunications, rolling stock, operations, security, and externalities.

3.1.17 risk

Combination of the probability of an event and its consequences.

NOTE 1: The term “risk” is generally used only when there is at least the possibility of negative consequences.

NOTE 2: In some situations, risk arises from the possibility of a deviation from the expected outcome or event.

3.1.18 risk management

Coordinated activities to direct and control an organization with regard to risk.

NOTE: Risk management generally includes risk assessment, risk treatment, risk acceptance and risk communication.

3.1.19 threat

Potential of an unwanted occurrence, which may result in harm to individuals, a system or organization, the environment or the community.

3.2 Abbreviations

For the purposes of this document, the abbreviations provided in the *National Railway Safety Regulator Act* (NSRA), SANS 3000-1, RSR 00-3 and the following shall apply:

NOTE: In the case of duplicated or differing abbreviations, the abbreviations provided here shall prevail.

BOI	Board of Inquiry
RIC	Rail Incident Commander
RIO	Rail Incident Officer
MOU	Memorandum of understanding
OM	Occurrence Management
OMP	Occurrence Management Policy
OMS	Occurrence Management System
RSR	Railway Safety Regulator
SMS	Safety Management System
SOP	Standard Operating Procedure
SIP	Safety Improvement Plan

4 Common essential requirements

4.1 General

4.1.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to ensure that it implements an Occurrence Management System (OMS) that:

a) is in accordance with the complexity of the railway operation;
b) is understood and accepted at all levels within the organization;
c) is supported by documentary evidence of the existence of, and in compliance with the OMS at all the relevant levels within the organization; and
d) receives commitment from all relevant levels of management.

4.1.2 The OMS shall be integrated into the operator's Safety Management System (SMS) and its operational processes and procedures.

4.1.3 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to ensure that its OMS shall include the following elements:

a) OM policies and relevant organisational structures;
b) a contingency plan; including its integration with the contingency plans of other operators, interested or affected parties at the interfaces or intrafaces and of other emergency responders;
c) reporting, recording and analysis structures;
d) investigative policies and structures; and
e) the mitigation of risks and the implementation of controls pertinent to the prevention of occurrences.

4.1.4 The operator shall implement or give effect to the implementation (or both) of all the objects of the processes and procedures required by this standard.

4.2 Policy and structure

4.2.1 Policy

4.2.1.1 The operator shall establish, develop or adopt, document, implement, and maintain an Occurrence Management Policy (OMP) which shall set out the operator's commitment to establish and manage an OMS.

4.2.1.2 The OMP shall guide and give effect to the operator's OMS and Occurrence Management Plans and which shall form an element of the operator's Safety Management System (SMS).

4.2.1.3 The OMP shall set out the operator's occurrence management philosophy, including the management of risks, and shall establish goals and objectives, processes and procedures for an OMS.

4.2.1.4 The OMP shall be formally adopted, ratified and published by the operator and shall provide the basis and authority for the development and implementation of the OMS.

4.2.1.5 The operator's OMP shall include at least the following:

a) a commitment to manage and mitigate the risks of railway occurrences;
b) a commitment to provide resources and support to senior management and its leadership including:
    1) finances,
    2) facilities,
    3) human resources, and
    4) training;
c) a commitment to appoint a person responsible for the implementation and management of the policy;
d) a commitment to develop and implement an effective OMS and the commitment of adequate resources to sustain it on an on-going basis in order to manage occurrences and to mitigate occurrence risks;
e) a commitment to review this policy and the OMS annually.
f) a commitment to review this policy and the OMS whenever the organization's activities, structures or circumstances change,
g) a commitment to review this policy and the OMS after an occurrence which results in one or more fatalities or major damage to infrastructure, rolling stock and environment; and
h) a statement that this OMP has been adopted and ratified by the board or the head of the operator's organization (or both) and that it forms part of the operator's policy.

4.2.1.6 Factors to be considered during the review process shall include:

a) outcomes of reviews of the OMS;
b) occurrence trend analyses;
c) findings and recommendations of Boards of Inquiry (BOI);
d) changes in the operational environment of the organization;
e) changes in the physical environment;
f) changes in the risk profile of the organization;
g) changes in the relevant employees, operations, services, processes, products, suppliers, distributors, sourcing and outsourcing arrangements, and
h) changes in the legislative and regulatory environment.

4.2.2 Structure

4.2.2.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures for the implementation of an OMS which shall include the following:

a) the availability of personnel with authority and responsibility to manage the OMS;
b) the availability of personnel with specialised experience and competencies required for the execution of the relevant elements of the OMS;

c) the provision of training to relevant persons in the relevant elements of the OMS;
d) the coordination and management of occurrence preparedness;
e) the annual testing of the relevant sections of the OMS and a review of the OMS on completion of the test exercise;
f) the provision of physical resources and equipment;
g) the provision of adequate funding; and
h) the retention of documentary evidence;

4.2.2.2 Factors to be considered shall include:
a) functional and physical areas of the organization;
b) geographical locations;
c) topography,
d) climatic conditions; and
e) the complexity of the operator's organization, its structures and operations.

4.2.3 Resources, roles, responsibility and authority

4.2.3.1 The operator shall determine and provide resources for the implementation and control of the OMS.

4.2.3.2 The operator shall appoint person(s) who, irrespective of other responsibilities, shall have defined roles, responsibilities and authority for:
a) ensuring that the OMP and relevant OMS elements, processes and procedures are established, implemented and maintained;
b) assessing, reviewing and reporting on the effectiveness of the OMS; and
c) ensuring awareness of the OMS within their areas of responsibility.

4.2.4 Competence, training and awareness

4.2.4.1 The operator shall ensure that all personnel who have the potential to cause, prevent, respond, mitigate or be affected by hazards, risks, threats and their corresponding impacts are identified.

4.2.4.2 The operator shall ensure that these personnel are made competent through appropriate experience, education and training.

4.2.4.3 The operator shall establish, develop or adopt, document, implement and maintain a training curriculum on the OMS aimed at all relevant personnel.

4.2.4.4 The curriculum design shall consider the requirements of relevant national legislation (see Forward) and shall include sections on:
a) compliance with the Occurrence Management Policy (OMP) and with its processes, procedures and elements;
b) the identification of the significant threats and risks associated with their work areas and the related actual or potential impacts;
c) their roles and responsibilities in achieving objectives and goals of the OMS;

d) the processes and procedures for the management of occurrences or disruptions including;
   1) the mitigation of, response to and recovery from occurrences; and
   2) the potential consequences of deviation from specified procedures.

4.2.4.5 The operator shall maintain processes and procedures to ensure awareness of the OMS at all levels in the organisation.

4.3 Approval in principle for a new or modified Occurrence Management System (OMS)

4.3.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures for the approval in principle by any affected operator or any affected and interested party (or both) of a proposal to develop a new, or modify an existing OMS, subsystem, process, procedure or component.

4.3.2 The proposed new or modified OMS, subsystem, process, procedure or component shall be interoperable with all other existing OMSs, subsystems, processes, procedures and components of all other operators, interested or affected parties where an interface or intraface either exists or is created.

4.4 Exclusion criteria

4.4.1 The operator shall resolve the following exclusion criteria for any proposal for a new or modified OMS, subsystem, process, procedure or component before the proposal is considered:

a) where there is a conflicting OMS, subsystem, process, procedure or component (or any combination thereof); and
b) where the proposed OMS is not in accordance with the interoperability, interface and intraface management requirements specified in SANS 3000-1, and SANS 3000-2-6.

4.5 Risk management

4.5.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to identify hazards related to its OMS and prioritise the resultant risks, including those arising from operational factors, technical factors, environmental factors; human factors, interface and intraface management factors and external factors which could lead to an occurrence.

NOTE: Risk assessments should be conducted jointly by the relevant and affected operators at the interfaces and intrafaces.

4.5.2 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to ensure all levels in the relevant operational and engineering environments identify hazards related to the OMS and prioritise the resultant risks for any potential occurrence in their areas of responsibility.

4.5.3 The operator shall carry out a review of this risk assessment and, where required, update it:

a) whenever the operator's structure, environment or circumstances (or a combination thereof) change;
b) periodically at intervals not exceeding two years; and
c) after every occurrence which resulted in a fatality, a serious injury or major damage to the environment, infrastructure or rolling stock (or a combination thereof).

4.5.4 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to mitigate the risks identified in clauses 4.5.1 and 4.5.2 including the following.

a) health and safety of persons, passengers, employees and contractors in the affected area at the time of an occurrence (such as fatalities and injuries);
b) health and safety of employees responding to the occurrence;
c) the continuity of operations;
d) the protection of property, facilities, and infrastructure; and
e) the protection of the environment;

4.5.5 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to identify hazards due to external eventualities, including utility services such as electricity, water, gas, transport and communications.

4.5.6 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to mitigate the risks identified in clause 4.5.6 and also implement and monitor the controls to mitigate the identified risks.

4.5.7 The records of risk assessments shall be retained for review by the relevant national railway safety regulator (see Foreword).

4.6 Prioritizing and funding

4.6.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures for prioritizing and funding of the requirements of this standard and the requirements of SANS 3000-1 to manage occurrences.

4.7 Recording and reporting of railway occurrences

4.7.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures for recording, notification and reporting of occurrences in compliance with SANS 3000-1.

4.7.2 The format of the documentation shall be in accordance with the directives or guidelines (or both) as provided by the relevant national railway safety regulator (see Foreword) from time to time.

4.7.3 Multiple levels for the severity of occurrences shall be defined to enable the activation of the correct level of response based on the severity of the occurrence including:

a) the nature of the occurrence;
b) its location;
c) its seriousness;
d) the possible cause;
e) any fatalities and injuries; and
f) the need to activate external responders.

4.7.4 In the event of more than one operator being involved in a railway occurrence, each operator involved shall individually report the occurrence to the relevant national railway safety regulator (see Foreword).

4.7.5 In addition to the railway occurrences that are reported to the relevant national railway safety regulator (see Foreword), operators shall record and manage all occurrences to assist them in assessing their own risks and safety performance.

4.7.6 The operator shall identify the safety data that shall be collected required to assess its performance with regard to its annual safety targets and objectives and to address any other operational safety or performance requirements.

5 Concept phase

5.1.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to conduct feasibility studies for the development and implementation of a new, or the modification of an existing, railway occurrence management system, subsystem or component including contingency plans, the recording and reporting of occurrences, the integration between plans at interfaces and intrafaces, the investigation of the causes of railway operational occurrences and mitigation plans, including:

a) a review of the approval in principle and the exclusion criteria;
b) the development of alternative solutions which include train operating requirements, physical network characteristics and environmental factors;
c) the conducting of risk assessments and cost-benefit analyses of the alternatives over the complete project life-cycle; and
d) the involvement of other operators or interested and affected parties (or both) at interfaces and intrafaces.

5.1.2 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to conduct feasibility studies for the geographical area covered by a specific contingency plan, including the following:

a) a review of the approval in principle;
b) the identification and evaluation of potential risks and threats of operational disruptions; and
c) the development of alternative solutions which include train operating requirements, network characteristics and environmental scoping studies where relevant.

5.1.3 During the feasibility studies, the operator shall consider the provision of the necessary resources and systems including competent human resources, to undertake the detail design and the subsequent phases of the project life-cycle.

5.1.4 Receipt from the relevant national railway safety regulator (see Foreword) of an “approval certificate” to proceed to the next phase of the project life-cycle, with or without conditions.

6 Design

6.1 General

6.1.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to define the framework for the management of railway occurrences at all levels in the organisation to ensure an integrated system.

6.1.2 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to safeguard the safety of the public, passengers, employees, contractors, rolling stock, infrastructure and freight.

6.1.3 The operator shall ensure that specific attention is afforded to people with disabilities or other special needs including pregnancy, temporary disability due to injury, etc.

NOTE: Planning to meet these requirements in advance can reduce risk and reassure those affected.

6.1.4 The following factors shall be considered:

a) the development and testing of scenarios based on the risk assessment;
b) the identification of other operators, interested and affected parties; and
c) the establishment of a system for communication with other operators and interested and affected parties.

6.1.5 The design of the procedures for the relevant geographical or operational area covered by each of the subsystems of the OMS shall include the results of the feasibility study and the requirements of SANS 3000-1 and SANS 3000-2-6 and shall include or confirm the following:

a) recording and reporting of occurrences;
b) contingency plans;
c) investigations of the causes of railway occurrences; and
d) interfaces and intrafaces for interoperability.

6.2 Recording and reporting

6.2.1 The operator shall ensure that procedures for recording, notification and reporting of occurrences are established, developed or adopted and maintained in compliance with clause 6.1.5(a) and SANS 3000-1.

6.3 Contingency plans

6.3.1 The operator shall establish, develop or adopt, communicate and maintain contingency plans to manage railway occurrences at all levels in the organisation.

6.3.2 Contingency plans shall be integrated with similar plans of other operators at the interfaces or intrafaces (or both) of railway operations and also with those of relevant external emergency responders including the relevant authorities responsible for disaster management.

6.3.3 The contingency plans shall be based on risk assessments (see clauses 4.4.1 and 4.4.2) to provide for the prevention and mitigation of the consequences of all potential occurrences.

6.3.4 Contingency plans shall continually improve the occurrence contingency capability of the operator, including procedures for:

a) regular testing of the OMS, its subsystems, processes, procedures and components;
b) ensuring continuous availability of competent persons and services that shall be specifically identified at the relevant sites;
c) ensuring continuous reliability and availability of relevant equipment and material at the relevant sites;
d) the immediate activation of emergency services for the protection of the public, passengers, employees, contractors, the environment and assets from immediate harm so as to ensure that:
    1) minimum time is lost; and
    2) decisions are quickly made to contain the scene and control events.
e) an initial categorisation of the occurrence and the activation of responders shall form part of the operator's initial response;

    NOTE: See Annex A for the categorisation of occurrences.

f) measures to ensure continuity of operation including the provision of procedures, processes, controls and resources to ensure that critical operational objectives are met;
g) recovery response;
h) call-out procedures (see Annex A);
i) on-site management of an occurrence, including safeguarding of the public, passengers, employees, contractors and the environment. Particular attention should be afforded to people with special needs;
j) liaison with emergency responders;
k) evacuation procedures;
l) initiation of an investigation;
m) environmental response and rehabilitation;
n) restoration of normal operations; and
o) management of the risk of subsequent exposure following a railway occurrence prior to remedial action being performed.

6.3.5 Contingency plans shall be designed for the intended level of response and shall include:

a) the role of the response team of the operator within the organisational structure (strategic, tactical or operational (or a combination thereof));
b) a clearly defined process for providing Rail Incident Commanders (RIC) or Rail Incident Officers (RIO) (or both) with the information needed to assist their decision as to whether to invoke or mobilize response teams; and
c) the establishment of an occurrence command post.

NOTE: This area will be the focal point for the operator's occurrence response team.

6.3.6 Contingency plans shall each contain the design of recovery management plans for the covered geographical area. The following factors shall be considered:

a) contractual obligations, core operational activities, employee and neighbouring community necessities, operational continuity, risk reduction, environmental remediation, and process improvement;
b) setting and prioritising specific recovery targets and procedures for implementing relevant activities;
c) setting of specific recovery milestones;
d) ensuring continuous availability of competent persons and services, including equipment and materials, that shall be specifically identified at the relevant sites;
e) the suspension of some operations or their cessation (or both);
f) designing pre-emptive plans based on lessons learned; and
g) designing, planning and strategizing for the resumption of safe operations as soon as possible.

6.4 Investigations

6.4.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to ensure that activities conducted in accordance with this standard have as their prime objective the identification of systemic safety deficiencies rather than to apportion blame or liability to any person or operator.

6.4.2 The operator shall conduct investigations into each occurrence. The intent shall be to establish the possible, immediate, underlying and root causes of the occurrence to develop and implement mitigations which shall include:

a) gathering and analysis of evidence including site inspections, documentation, photographs, diagrams and interviews;
b) ascertaining the classification of the type of occurrence (see Annex A);
c) conducting a hazard identification and risk assessment of the circumstances that lead to the occurrence;
d) developing robust recommendations to mitigate the causes identified in clause 4.5; and
e) developing and implementing corrective actions.

6.4.3 Only competent persons shall conduct investigations.

6.5 Collaboration during railway occurrences

6.5.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to provide clear guidelines for the effective management of interoperability at the interfaces or intrafaces (or both) between operators, interested and affected parties and its internal disciplines.

6.5.2 Management of interoperability at the interfaces, intrafaces and with interested and affected parties shall include:

a) the establishment of joint railway occurrence management committees which shall establish and agree on contingency plans and actions;
b) a clear demarcation of responsibilities to ensure that there are no conflicts of functionality, site access authority, response and response time and resource requirements;
c) the appointment of a Rail Incident Officer (RIO) by each operator involved in a particular occurrence; and
d) the network operator on whose network the occurrence took place shall be responsible for the appointment of the RIC.

6.5.3 The following factors shall be considered:

a) the identification of the functional roles and responsibilities of internal and external agencies, organizations, departments and individuals;
b) the lines of authority that shall be established or identified for those agencies, organizations, departments and individuals;
c) the competencies required shall be specified; and
d) the minimum resource requirements, including personnel, equipment and materials shall be identified.

6.5.4 Management of railway occurrences and contingency plans shall be jointly developed, implemented and maintained with other operators or disciplines (or both) at the interfaces or intrafaces (or both) of railway operations.

6.5.5 The management of railway occurrences shall include relevant external emergency responders including the relevant authorities responsible for disaster management.

6.5.6 The management of railway occurrences at interfaces and intrafaces involving interested and affected parties and any other relevant authorities shall include the management of potential conflicts of interest with regard to:

a) each organisation having its own mandate;
b) each organisation may have its own goals and objective for a specific occurrence;
c) each organisation may have its own policy regarding sharing of information and level of general co-operation with the operator; and
d) where an MOU or SOP (or both) for occurrence investigations exists, the RIC and RIO must ensure that they are acquainted with the contents thereof and exercise their duties in the spirit of the appropriate MOU or SOP (or both).

6.5.7 Common elements in response to contingency plans at the interfaces and intrafaces shall include:

a) the identification of the functional roles and responsibilities of internal and external agencies, organizations, departments and individuals;
b) the identification and establishment of lines of authority for those agencies, organizations, departments and individuals;

c) specification of the required competencies; and
d) identification of the minimum resources, equipment and material requirements.

6.5.8 The operator shall include the range and nature of external interdependencies in its contingency plans.

6.5.9 The operator shall identify and include in its emergency plans:
a) contact details during business and after hours;
b) stakeholder expectations including the agreed minimum service levels and mandatory requirements; and
c) alternate functional relationships such as locations for deliveries, changed frequency of interactions,); and alternate sources for contract requirements.

6.5.10 Receipt from the relevant national railway safety regulator (see Foreword*)* of an "approval certificate" to proceed to the next phase of the life-cycle, with or without conditions.

7 OMS execution

7.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to execute its OMS at all relevant levels and sites of the organisation. This shall include the contingency plans, the interoperability processes and procedures, the investigation processes and procedures and the recording and reporting processes and procedures.

7.2 Receipt from the relevant national railway safety regulator (see Foreword) of an “approval certificate” to proceed to the next phase of the life-cycle, with or without conditions.

8 Testing and commissioning

8.1 The operator shall develop and implement a simulation plan to be used to validate and test, through simulation where practicable, the system, subsystems, processes, procedures and components of the OMS.

8.2 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to validate and verify the OMS, its subsystems, procedures and components against user requirements, the requirements of this standard and of SANS 3000-1 and SANS 3000-2-6.

8.3 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to validate and verify the hazards identified in the design and execution phases including the resultant risks that have been quantified and mitigated. These risks shall be terminated, transferred or treated to form a coherent risk assessment for this phase.

8.4 Receipt from the relevant national railway safety regulator (see Foreword) of an “approval certificate” to proceed to the next phase of the life-cycle, with or without conditions.

9 Operation

9.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to operate the OMS, subsystems and components in all the relevant levels of the organisation and at all relevant sites and which shall include the continual improvement of its occurrence management program.

NOTE: The life-cycle phases of monitoring and maintenance, modification, and decommissioning and disposal are an integral part of the “operational phase” of the life-cycle. However, for clarity each will be dealt with separately.

9.2 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to train, re-train and provide refresher training to the relevant employees involved in the execution of the OMS, subsystems, processes, procedures and components.

9.3 Receipt from the relevant national railway safety regulator (see Foreword) of an “approval certificate” to proceed to the next phase of the life-cycle, with or without conditions.

10 Monitoring and maintenance

10.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to monitor including evaluation, measurement of performance, maintenance and continual improvement of the OMS, subsystems, processes, procedures and components.

10.2 The operator shall establish, develop or adopt, document, implement and maintain programmes to monitor the achievement of its occurrence preparedness, objectives and targets at all relevant functions and levels of the organization, including:

a) a means and timeframe by which they will be achieved; and
b) the performance which shall be reflected in operator's Safety Improvement Plans (SIPs).

10.3 Mitigations executed as a result of identified problems shall be risk-based and include:

a) a review and modification of maintenance and operational policies, processes and procedures;
b) modification of the system or a subsystem or component by following the entire life-cycle process commencing with the concept phase; and
c) decommissioning and disposal of the system, subsystem or component or the development of new processes and procedures.

10.4 The operator shall establish, document, implement, and maintain policies, processes and procedures to ensure a regular review of its OMS which shall include:

a) results of OMS reviews;
b) changes in physical environment;
c) changes in risk profile;
d) changes in key employees, operations, services, processes, procedures, products or suppliers;
e) distribution, sourcing and outsourcing arrangements and market-forces; and
f) significant changes in the legislative and regulatory environment.

11 Modification

11.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to modify the OMS, its subsystems, processes, procedures and components.

11.2 Modification of the OMS, its subsystems, processes, procedures or components shall be executed by applying the requirements described in clauses 5 to 10 of this standard.

11.3 Receipt from the relevant national railway safety regulator (see Foreword) of an “approval certificate” to proceed to the next phase of the life-cycle, with or without conditions.

12 Decommissioning

12.1 The operator shall establish, develop or adopt, document, implement and maintain processes and procedures to decommission and dispose of parts or sections of the OMS, subsystems, processes, procedures and components and shall include:

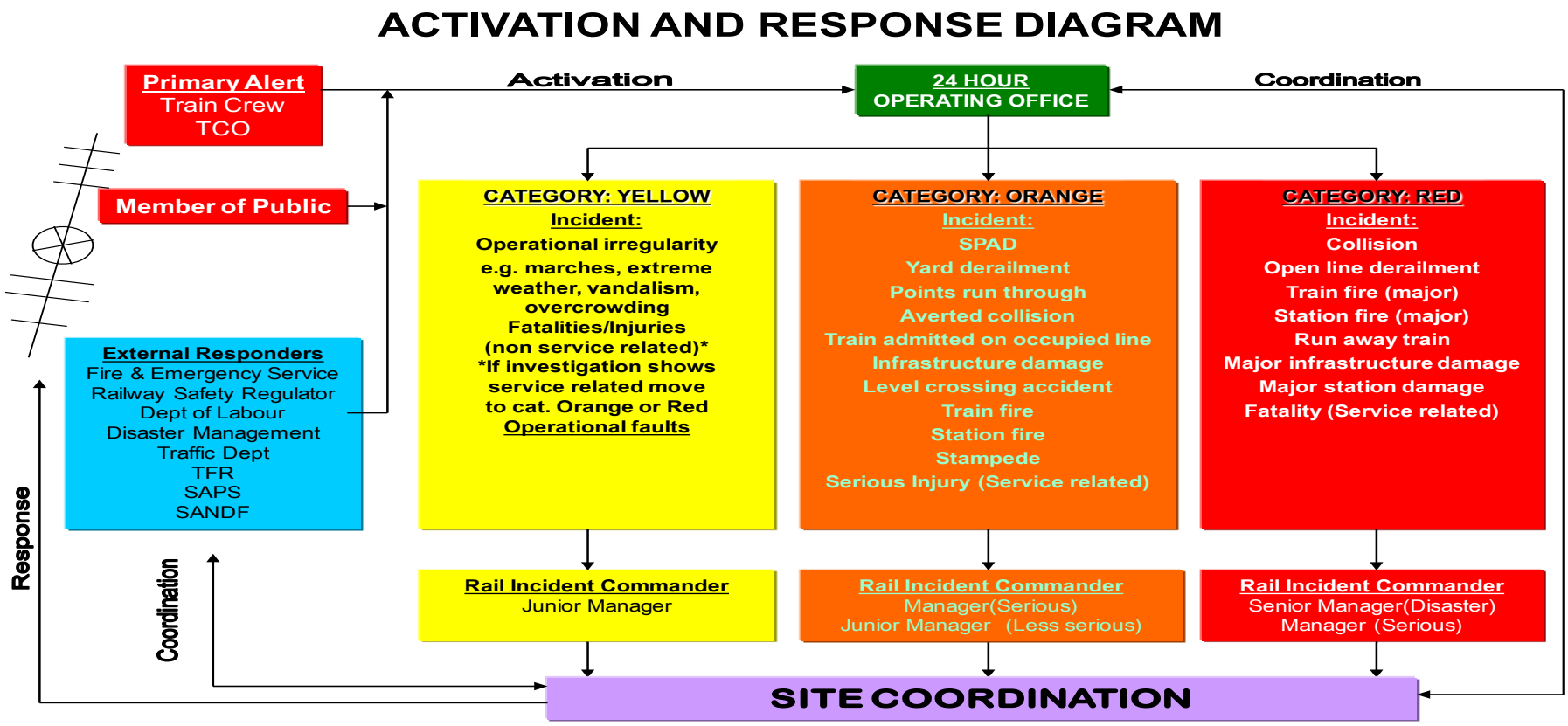
a) consideration and treatment of all environmental issues as required in the relevant national legislation (see Foreword);
b) the identification of hazards and the resultant risks which shall be quantified, prioritised and shall be terminated, transferred or treated;
c) marking of equipment either as still serviceable or as ready for disposal;
d) consideration of the interdependencies and effects on other components of the OMS; and
e) consideration of the interdependencies and effects on other operators at the interfaces or intrafaces.

12.2 Receipt from the relevant national railway safety regulator (see Foreword) of an “approval certificate” to proceed to the next phase of the life-cycle, with or without conditions.

Annex A

Informative

A.1 Activation and response diagram



Annex B

Informative

B.1 Occurrence severity categorisation

OCCURRENCE MANAGEMENT

	CATEGORY: YELLOW	CATEGORY: ORANGE	CATEGORY: RED
Incident	**Operating irregularity** **Operational faults**	**SPAD** **Yard derailment** **Points run through** **Averted collision** **Train admitted on occupied line** **Infrastructure damage** **Level crossing accident** **Train fire** **Station fire**	**Collision** **Open line derailment** **Train fire (major)** **Station fire (major)** **Run away train** **Major infrastructure damage** **Major station damage** **Release of dangerous goods (HAZMAT)**
Service disruption	**5-20 minutes delays** **Normalised within one hour**	**20-60 minutes delays** **Normalised between 2 - 60 minutes**	**>60 minutes delays** **Normalised > 2 hours**
Primary Response: Call out	**Technician*** **Branch/Technical Managers** **Section Managers** **Area Managers (C/S)** **Manager (Train Operations)*** **Manager (Safety)*** *via Elec/Signal/Faulty **Informed and telephonic coordination*	**Manager (Train Operations)** **Manager (SMS)** **Manager (Safety)** **Manager (Risk)** **Departmental Managers** **Section Managers** **Area Managers** **JOO (Spoornet)** **Intersite (Station)**	**Regional Manager** **WEXCO Managers** **Manager (Train Operations)** **Manager (SMS)** **Manager (Safety)** **Manager (Risk)** **Departmental Managers** **Section Managers** **Area Managers** **JOC (Spoornet)** **Intersite (Station)**
Secondary Response: Informed	**Departmental Managers** **Asst Manager (Risk)** **WEXCO Managers*** **Regional Manager*** **With larger disruptions 20 min Area Mangers (C/S)*	**Regional Manager*** **WEXCO Managers*** **Follow-up information determines response and informing HQ/others for further activation.*	**CEO*** **Executive Managers (HQ)*** **Informed by Regional Manager/WEXCO Managers*

OCCURRENCE MANAGEMENT

Impact	No fatalities Minor injury Minor damage to property	Fatality (suicide, trespassing) Serious injury (suicide, trespassing) Injury (service related) Damage to property	Fatality (service related) Serious injury (service related) Major damage to property
Rail Incident Commander	Junior Manager (serious) Section Manager (less serious) Area Managers	Manager (serious) Junior Manager (less serious)	Senior Manager and higher (Disaster) Manager (Serious)
Investigations *(Coordinate by SMS Office to RSR requirement)*	Flimsy report Departmental Investigations* **Arranged by Head of Department to be done within 1 day*	Departmental Investigations Evaluation Committee* Risk to coordinate **Arrange by Train Operations Department (2 days)*	Departmental Investigations Board of Inquiry* **Arranged by Risk Department* ** Involve external (2 days)*
Investigation report format	1) Flimsy 2) Departmental report(s) (department format) 3) SMS report in standard format	1) Departmental report(s) (department format) 2) Evaluation Committee report (standard format)	1) Departmental report(s) (department format) 2) Board of Inquiry report (standard format)
Awareness/ communication (by start of business next day)	1) Newsflash to departmental staff describing incident, cause, corrective action (as per standard format)* **Use trends, awareness, activities, etc.*	1) Standardise Newsflash (as in category yellow) 2) Preliminary report to WEXCO, Regional Manager and Risk Dept (as per standard format)* **Only for operating or technical irregularities*	1) Newsflash (as in category yellow) to all Wits and HQ 2) Preliminary report (as in category orange) * **Only for operating or technical irregularities*

End of document.