AS 7472:2018

Australian STANDARD®

Management of change – Railway operations

RISSB
RAIL INDUSTRY SAFETY AND STANDARDS BOARD

Safety Standard

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This Australian Standard® AS 7472 Management of change – Railway operations was prepared by a Rail Industry Safety and Standards Board (RISSB) Development Group consisting of representatives from the following organisations:

ARTC	Metro Trains Melbourne	Queensland Rail
Transport for NSW	Public Transport Authority of Western Australia	Dakar Risk,
BHP	Aurizon	DPTI (SA)
Arc Infrastructure	WS Atkins international	Rail Safety Consulting Australia
V/Line	AusSafe Consulting	

The Standard was approved by the Development Group and the Safety Standing Committee in Select SC approval date. On Select Board approval date the RISSB Board approved the Standard for release.

Choose the type of review

Development of the Standard was undertaken in accordance with RISSB's accredited process. As part of the approval process, the Standing Committee verified that proper process was followed in developing the Standard.

RISSB wishes to acknowledge the positive contribution of subject matter experts in the development of this Standard. Their efforts ranged from membership of the Development Group through to individuals providing comment on a draft of the Standard during the open review.

I commend this Standard to the Australasian rail industry as it represents industry good practice and has been developed through a rigorous process.

Paul Daly
Chief Executive Officer
Rail Industry Safety and Standards Board

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Contents

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1 Introduction

1.1 Purpose

This Management of Change (MoC) Standard describes the requirements to be applied by all rail organisations to ensure that safety risks associated with changes to railway operations, assets or systems are identified and eliminated or reduced so far as is reasonably practicable (SFAIRP).

1.2 Scope

This Standard applies to all organisations who are responsible for safety under the Rail Safety National Law (RSNL) and Regulations. Specifically, there is a requirement under the RSNL Regulation Schedule 1 clause 12. For the purpose of this Standard and to be consistent with the RSNL, all organisations will be referred to as Rail Transport Operator (RTO).

MoC is a methodology that is used as part of the risk assessment and control process. This Standard outlines the key actions under the MoC methodology.

These actions form a systematic and structured process which ensures all risks associated with a change are identified and are reduced so far as is reasonably practicable (SFAIRP) before the change is implemented. This step by step process is described in detail along with a range of critical supplementary activities which apply throughout the process.

The MoC can vary considerably depending on the complexity/risk potential of the change under consideration. A simple change invokes the initial actions as outlined in the standard but, based on a risk assessment, is unlikely to proceed to further actions. A more complex change applies the actions and process outlined. In some cases, these actions can have sub-actions, additional validation processes can be added or other processes can be included that RTOs consider necessary for the change to be correctly managed.

1.3 Compliance

There are two types of control contained within Australian Standards developed by RISSB:

(a) Requirements.

(b) Recommendations.

Requirements – it is mandatory to follow all requirements to claim full compliance with the Standard.

Requirements are identified within the text by the term ‘shall’.

Recommendations – do not mention or exclude other possibilities but do offer the one that is preferred.

Recommendations are identified within the text by the term ‘should’.

Recommendations recognise that there could be limitations to the universal application of the control, i.e. the identified control cannot be able to be applied or other controls can be appropriate / better.

For compliance purposes, where a recommended control is not applied as written in the standard it could be incumbent on the adopter of the standard to demonstrate their actual method of controlling the risk as part of their regulatory obligations. Similarly, it could also be

incumbent on an adopter of the standard to demonstrate their method of controlling the risk to contracting entities, or interfacing organisations where the risk may be shared.

Controls in RISSB standards address known railway hazards as included in an appendix.

1.4 Referenced documents

1.4.1 Normative references

The following referenced documents are indispensable for the application of this Standard:

(a) Rail Safety National Law Act 2012 and Regulations *.

(b) RISSB Standard AS 7702 Rail Equipment Type Approval.

** Note Western Australia applies mirror legislation*

1.4.2 Informative references

The following referenced documents are used by this Standard for information only:

(a) AS/NZS ISO 9001 Quality management systems – Requirements.

(b) AS/NZS ISO 45001 Occupational health and safety management systems – Requirements with guidance for use.

(c) AS/NZS ISO 31000 Risk management – Principles and guidelines.

(d) iESM International Handbook for Engineering Safety Management.

(e) RISSB Guideline Systems Safety Assurance.

(f) RISSB Hazard Register

(g) Various ONRSR Guidelines E.g. Preparation of a Rail Safety Management System, Major Projects

1.5 Definitions

Change: the process of causing a function, practice, system, asset or object to become different somehow to what is at present. RTOs can undergo changes in specific areas of the business, in its operations or as a whole. Changes can also occur in processes and technology and includes decommissioning/removal from service. Change is also a term describing the effects or outcomes after the transition or transformation of a function, method or object.

Rail transport operator (RTO): means:

(a) a rail infrastructure manager;

(b) a rolling stock operator; or

(c) a person who is both a rail infrastructure manager and a rolling stock operator

Safety management system (SMS): Is a systematic approach to managing safety, including the necessary organisational structures, accountabilities, policies and procedures. In this Standard, SMS to also includes the safety system of a registered (exempt from accreditation) Rail Infrastructure Manager (RIM) of a Private Siding.

2 Management of Change overview

For the purpose of rail safety management, change includes anything that has the potential to alter existing risks or introduce new hazards.

Changes can be made to management, systems, processes or assets for both new or modified applications. Change should include any change with a potential impact on the organisations SMS or conditions of accreditation. Examples include but are not limited to changes in:

(a) rolling stock, infrastructure, equipment or facilities;

(b) technology (e.g. signalling, IT etc);

(c) the work environment;

(d) process including work practices, policies and procedures;

(e) operational areas, services or the establishment of a new operational area;

(f) organisational structures and/or roles including relationships with key stakeholders such as contractors or suppliers or government agencies;

(g) business strategy or activity;

(h) interfaces with other rail organisations;

(i) the regulatory environment.

A change can be influenced by, or affect one or more of, the above elements and/or the interfaces between these elements. Hence, a systemic (or holistic) view to the MoC process should be adopted to ensure that the impact on all elements and their interfaces across their lifecycle can be systematically identified, assessed and controlled.

On becoming aware of a change, the process outlined in the standard should be followed, noting all specific actions may not be necessary for simple, low risk changes.

Change management is not the same as MoC – the former deals with the people side of change, or changing people's behaviour, MoC focuses on technical and safety aspects

Effective MoC requires a variety of people throughout the organisation to actively fulfil specific roles of leadership, education and review and assessment of the change. Adequate dedicated resources shall be allocated with clearly defined roles and responsibilities to manage the change.

During the process, there are a range of other matters which form part of the process. These include the following:

(a) Impact scalability - a change can vary dramatically from very simple to very complex and the degree of scrutiny required, and the resulting level of detail required at each action should be proportionate to the degree of risk introduced by the change. A change that is assessed as high risk will require more careful planning and risk analysis than a routine change. A simple, low risk change may not require all actions to be implemented. The process should stop once the assessment of risks has been undertaken and the change deemed sufficiently low risk to not require further action.

(b) Consultation and communication - consultation and communication with persons likely to be affected by change is an integral part of MoC and shall be included, where reasonably practicable, throughout the MoC process. The

level of consultation will depend on the nature and size of the change and can involve internal and external parties. Stakeholders impacted by the change shall be consulted and have input and ownership into the planning and design for the proposed change. There are requirements under the Rail Safety National Law Section 99 clause 3(a) which defines the five stakeholder groups who shall be consulted during the varying of a safety management system which can occur from the change

(c) Information and training – this is relevant to all stakeholders, in particular rail safety workers (RSW) involved in the change process or who can be affected by the change, shall be fully informed and, where appropriate, trained so they can understand and play their part in the implementation of the change. The level of training and individual competencies will depend on the RSW and the nature of the change.

(d) Change responsibility – a RTO shall appoint a person who is accountable for leading the process (this role can be known by a number of titles including change manager, change champion or change owner). This person shall have the appropriate competencies and in a relevant role to oversight the complete process. Depending on the nature and size of the change, organisations may also consider the involvement of an engineering manager or safety assurance manager along with the appointment of other roles including risk owner, change endorser and change approver.

(e) Submitting a variation to accreditation or notification of change or variation of registration– for those organisations accredited under the RSNL (including Registered Private Siding operators), the organisation should review its accreditation notice to determine whether the change is within the permitted operations and conditions. The RTO should advise ONRSR in accordance with the RSNL and Regulations - Regulation 9.

3 Management of Change actions and process

3.1 Overview

The actions that should be applied to a MoC process include:

(a) identify and describe the change and required resources and key stakeholders impacted by the change;

(b) identify risks (including new risks) and assess their impact – it is at this stage low risk change can be identified and the MoC process limited;

(c) plan the change in detail;

(d) validate the change and get authorisation to proceed;

(e) implement the change;

(f) monitor the change and review;

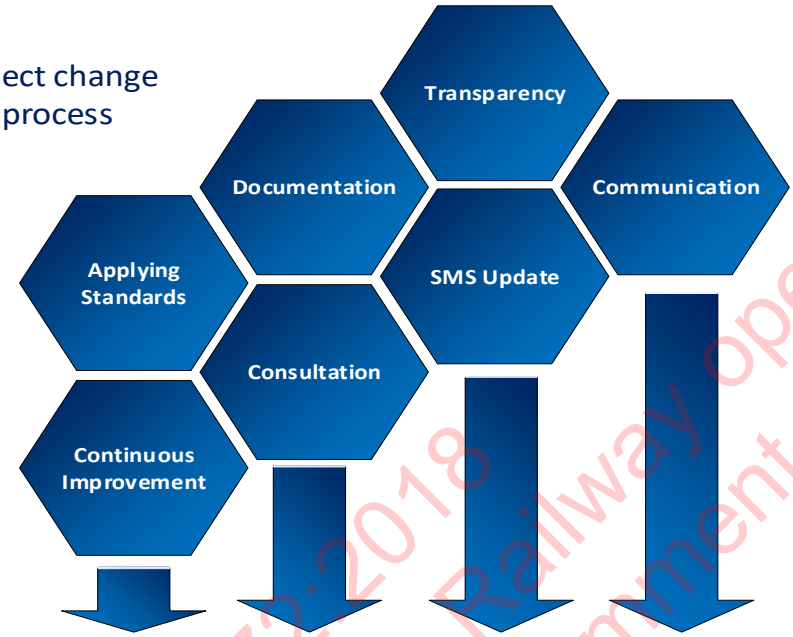
Throughout this process there are a range of activities that should be undertaken including:

- documentation – of each step in a specific change register, the risk register or other appropriate means in the safety management system;
- continual improvement – documents and processes should be reviewed during the process;
- consultation – initial identification and, where practical, direct consulting with affected parties;
- communication - making clear the roles and responsibilities of rail safety workers and employees of the rail transport operator with respect to the change and ensuring everyone impacted are fully informed and trained to understand and deal with the proposed change;
- applying standards – ensuring, where appropriate, the change is consistent with accepted codes or standards or if a new standard needs to be developed;
- transparency - decisions are transparent and formally accepted by those responsible for decision-making within the rail transport operator;
- safety documents - the organisations SMS and any supporting documents and/or systems such as maintenance manuals, databases, procedures, safety cases, designs etc will require review and amendment as appropriate

The general MoC process with a brief description of each action is shown in Figure 1. Throughout the process the complementary activities outlined should be undertaken.

Management of Change (MOC) Actions

Activities subject change management process



MOC Actions

1. Describe	*Define and document the change and its context within the RTO's activities developing the necessary plans for managing the change in consultation with stakeholders including any organisations that will interface with the organisation during this change.*
2. Assess	*Identify the risks and assess their impact and decide how the risk, including the controls, can be managed so far as is reasonably practicable*
3. Plan	*Evaluate information gathered, further consultation with appropriate stakeholders and judgement decisions to determine options available. Develop an implementation plan. Include required approvals, controls, communication protocols, training aspects, resources, documentation and review requirements.*
4. Approve	*Consolidate documentation on the change including any supporting records, document and gain internal sign off from the appropriately authorised person or persons within the rail transport operator.*
5. Implement	*Delivery should be against an approved implementation plan for implementation and if anything changes during implementation, the plan should be modified if required go back to action 2.*
6. Describe	*It is important the change is fully accepted and adopted. Establish a review committee or similar to review and assess the change.*

Figure 1 – Action activities

3.2 Action 1 Describe the change

To assess the significance of the change, the first action is to define the change and its context within the RTO's activities. This includes developing the necessary plans for managing the change in consultation with stakeholders including any organisations that will interface with the organisation during and after this change.

This shall be documented and provide detailed information regarding:

(a) the identification of the required resources;

(b) the reason for the change;

(c) roles and responsibilities for the change;

(d) who is affected by the change;

(e) a description of what is to be changed;

(f) when the change will occur;

(g) the engineering and operational interfaces that will be affected;

(h) potential business impacts - additional resources - additional expertise and competencies - construction activities (for example line closures, track occupations);

(i) project discipline involvement - procurement - design - construction/installation - maintenance - commissioning/testing - de-commissioning;

(j) whether the change requires notification to ONRSR or application for variation to accreditation.

The change shall be reviewed and amended as required in accordance with the implementation plan and updated with any additional safety requirements that are identified during other steps in the MoC process. The description can change due to factors such as changes in scope, changes in client requirements, increasing design definition or implementation of changes proposed by contractors and suppliers.

Changes that involve new or modified assets, plant, equipment or information technology for which a project life cycle applies should be subject to processes that consider the life cycle of the project, including:

(a) concept and feasibility;

(b) definition of requirements;

(c) design;

(d) implementation;

(e) installation and commissioning;

(f) operations and maintenance;

(g) decommissioning, repurposing or disposal.

3.3 Action 2 Assess the risks and likely impacts

This action involves identifying risks and potential impacts undertaking a risk assessment on the proposed change and deciding how the risk, including the controls, can be managed so far as is reasonably practicable. An initial step is to decide if the change is justified and supported.

The RTO shall assess the risks/impacts arising or potentially arising from carrying out the change and document the controls, including audits, expertise, resources and staff that are to be used by the RTO to manage risks to safety and the procedures for monitoring, reviewing and revising the adequacy of the established controls.

The process for carrying out the risk assessment should be detailed. Factors to include in the risk assessment should include the following:

(a) Ensure the change is necessary and supported.

(b) Look at options to ensure the correct solution has been identified and there are no further options and the change is SFAIRP.

(c) Consider whether the change is temporary, shorter term, long term, the cost of implementation, and timescales involved.

(d) Take into account the significance and degree of the change (including if the proposed change requires this process to be applied) and ensuring the level of detail and the method applied in the risk assessment and associated documentation is commensurate with the risk.

(e) Consider the potential for any interfacing systems, processes or procedures to be impacted.

(f) Apply appropriate use of risk management tools and techniques in the context of an in-depth understanding of the change proposed, its potential impacts on current activities, operational interfaces, and the rail transport operator's SMS. This can require application of quantitative risk assessment techniques and/or other supporting risk management techniques.

(g) Include consideration of human factors aspects.

(h) Ensure the new cumulative impact of all the hazards does not increase the overall risk of without appropriate risk controls being implemented. The change shall not introduce greater safety consequences.

(i) Compare the level of risk before and after the proposed changes.

(j) The need to use only "type approval" items such as in signalling or other safety critical systems.

Consideration should be given to the risk and consequence independent of the scale of the change. If the consequence is high even though the probability is low, the full list of actions should be implemented. Where existing risk controls are removed the decision should be documented, explaining what controls have been removed and why, and how the associated risks are to be managed.

Consultation with relevant stakeholders, rail safety workers and employees affected by the change shall be undertaken for identifying and assessing risks to safety resulting from change and related control measures.

At this stage the proposed change should also be evaluated in terms of impact scalability. If the change is assessed as low risk or a normal process the RTO undertakes, further actions as outlined should be assessed by the RTO in the context of their risk management processes and SFAIRP considerations.

3.4 Action 3 Plan the change in detail

This action requires the evaluation of information gathered, further consultation with appropriate stakeholders and judgement decisions to determine options available. The focus is on risks/impacts and how they are to be controlled. Higher impact changes require greater management and assurance.

The change and associated activities shall be determined.

An implementation plan should be developed. This plan could include:

(a) plans for introducing the change including resource requirements, timing and all necessary modifications to the safety management system and regulatory approvals;

(b) communication, whereby important changes regarding operations, equipment and procedures are effectively communicated throughout the organisation;

(c) requirements for instruction and ensuring people are trained and, where required, have the appropriate competencies;

(d) any additional resources required to implement the change, for example supervision or verification;

(e) inclusion of how human factors have been integrated into the planning and design process;

(f) documents that need to be revised, such as key organisational documents including the RTO's SMS, as well as operating procedures, risk registers, interface agreements, emergency plans;

(g) plans for monitoring and reviewing the change following implementation Identification of the resources required;

(h) an exploration of barriers to effective change and ways to overcome these barriers (examples of barriers could include employee/stakeholder resistance, bureaucratic inertia and the environment);

(i) an explanation of how assurance and governance is being organised;

(j) identification of the need for an independent validator. Where the safety impact is determined as significant, a safety validation process shall be developed and carried out or arranged to be carried out.

In this action, clearly documented processes and describing how consultation will be undertaken are essential.

3.5 Action 4 Get the change approved

This action involves consolidating documentation on the change including any supporting records (such as external reports, reference designs, impact and risk assessment outcomes, quotes, or findings). The change shall be clearly documented and gain internal sign off from the appropriately authorised person or persons within the RTO. During the MoC process, there will

be a range of further approvals required. This will involve identified key roles (such as the change manager) noting, supporting or modifying the resources required.

3.6 Action 5 Implement the change

Once a change has received the necessary internal and external approvals, the change may be implemented.

Delivery should be against an approved plan for implementation and be an iterative process. If anything changes during implementation, the risks should be re-assessed and plans shall be modified. If the scope of the change alters then an approval process will be required.

Responsible staff shall monitor the implementation phase closely and make alterations to the plan quickly, whilst keeping the relevant stakeholders aware of the changes. They should:

(a) report activity status including slippage and how activities were closed out;

(b) continually monitor and collate comments on the effectiveness of the implementation strategy;

(c) document changes to ensure that the change process and any subsequent alterations can later be audited if required;

(d) trouble-shoot emerging issues and put in place mitigating actions;

(e) support the team involved in the change process;

(f) manage resistance and encourage support.

Co-ordination is required across the various business units involved in the process and all risks shall be managed SFAIRP.

3.7 Action 6 Monitor and review the change

It is important the change is fully implemented, accepted and adopted. Depending on the scale of the change, the organisation shall establish a post-implementation process to review and assess the change.

Organisations should consider:

(a) follow up assurance activities to check the effectiveness of the change implementation, including risk mitigation;

(b) any new risks that eventuated;

(c) any pre-existing risks that have increased or decreased after implementation;

(d) any pre-existing risks that have been reduced or eliminated;

(e) additional risk controls, implemented as part of the change;

(f) performance targets and organisational key safety performance targets set in the change process;

(g) information and/or training that has been provided to staff affected by the change;

(h) the provision of all support documentation / manuals and spare materials;

(i) confirmation that all RTO documents have been revised, including key organisational documents including the RTO's SMS.

4 Conclusion

The MoC process is an iterative process with continual improvement forming a key part. The process is scalable depending on the identified impact of risks and their controls. The actions and step by step process outlined in this Standard should be applied by all RTOs. All sub-actions within each action shall be implemented. Actions should be incorporated into an organisations MoC process in their SMS.

As the rail industry implements innovative ideas or new technologies that improve efficiency and safety, it is important the industry demonstrates how it is managing risk with any change including the option of a trial and the transition to permanent application. Change is fundamental to continual improvement. Without change there can be no improvement.

Appendix A Hazards addressed by this Standard

The table below identifies the hazards listed in the RISSB hazard guideline that are addressed in this standard. In many cases other controls could be required to mitigate the risk SFAIRP and hence the table should be considered as illustrative only.

Source	Related Factors	MoC Standard Reference
2.1 Loss of accreditation	2.1.9 The failure to follow appropriate risk management processes 2.1.10 The failure to identify and document major hazards across operations 2.1.23 The lack of effective change control systems 2.1.24 The failure to implement effective change management systems	

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