UGL REGIONAL LINX

CRN GM 002 Standards & Codes Development Manual

CRN-MAN-AMS-713026361-368

LINKING COMMUNITIES. CONNECTING CUSTOMERS.

Table of Contents

1 Document Control

Function	Position	Name	Date
Approver	Head of Assets and Engineering	Luke Cunningham	24.06.2024

Revision	Issue Date	Revision Description
1.5	08.2020	Previous CRN provider issue
2.0	12.11.2021	First Issue
3.0	21.01.2022	Published version – no change
4.0	24.06.2024	Updated role descriptions, STC membership, and fixed various formatting issues

2 Introduction

This manual explains the process for development, authorisation and implementation of Standards & Codes on the UGLRL Country Regional Network (CRN). The process centres on the role of Principal Engineers as the custodians of the Standards & Codes sand follows a continuous improvement cycle as part of the overall CRN asset management process.

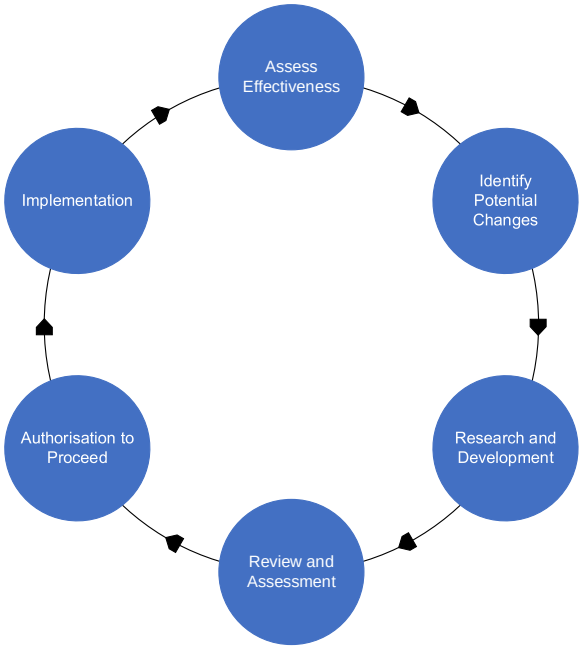

Figure 1:Standards & Codes Development Cycle

3 Scope

Standards & Codes change is overseen by a Standards Technical Committee (STC) comprising the Head of Assets and EngineeringHead of Assets and Engineering, Principal Engineers, the Civil Maintenance Engineer and other guests as required from time to time.

Standards & Codes applicable to the CRN have been categorised as 'Engineering Standards & Codes' and 'Operational Maintenance Standards' to separate the management responsibilities between TfNSW and UGLRL respectively as per the O&M Deed. The change management methodologies for the two categories are outlined in UGLRL SMS Element 18 - CRN-FRA-RLS-459032646-253 - General Engineering and Operation Safety Systems and CRN-E-P004 Changes to Engineering Standards, which is included in Appendix A of the O&M Deed scope of Works.

The general scope, structure, composition and general applicability of the CRN Standards & Codes are described in CRN GM 001 Standards & Codes System Manual. The specific scope of coverage of the CRN Standards & Codes is described in CRN GM 003 Scope of Coverage of Standards and Codes. CRN GM 001, CRN GM 003 and CRN-E-P004 need to be read in conjunction with this manual.

This manual applies to;

- Changes to all Standards & Codes documents, including manuals, specifications and forms; and
- Changes to operating conditions, principally incorporated in the Train Operating Conditions (TOC) Manual; and
- Development of new Standards & Codes documents
- Type approvals of standard equipment and processes to be utilised on the CRN.
- This manual does not apply to granting of waivers, endorsing of concession requests, or publication of special notices or advisory documents by Principal Engineers.

This manual is for use by;

- UGLRL personnel seeking improvements to the standards and codes;
- Members of the Standards Technical Committee (STC); and
- personnel providing support services to Principal Engineers in the management and development of standards and codes.

4 References

- CRN-PLN-RLS-459032646-216 - Management Responsibilities, Authorities & Accountabilities Procedure
- CRN-POL-AMS-713026361-114 - Asset Management Policy
- CRN-MPN-RLS-713026361-103 - Asset Management Framework
- CRN-PLN-AMS-713026361-304 - Configuration Management Plan
- CRN-PLN-AMS-1737869751-32 - Terms of Reference - Configuration Control Board
- CRN-FRA-RLS-459032646-253 - General Engineering and Operation Safety Systems
- CRN-PRC-RLS-459032646-177 - Management of Change Procedure
- CRN-MPN-QMS-823503868-10 - Quality Assurance Management Plan
- Other non-Safety Management System references for this manual are the references contained in CRN GM 001.

4.1 Abbreviations and definitions

In addition to the common abbreviations and definitions described in CRN GM 001, the following are particular to this manual:

STC	UGLRL Standards Technical Committee
SMS	UGLRL Safety Management System

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6 Standards & Codes development

6.1 Approach to Standards & Codes development

The initial Standards & Codes for the UGLRL management of the CRN have been transitioned from the John Holland Rail which had the responsibility of managing them until the UGLRL takeover of the management responsibility of the CRN network. From the commencement of UGLRL operations, the responsibility for managing Standards & Codes is divided between TfNSW and UGLRL as per:

- CRN-PLN-RLS-459032646-216 - Management Responsibilities, Authorities & Accountabilities Procedure,
- CRN-FRA-RLS-459032646-253 - General Engineering and Operation Safety Systems, and
- CRN-E-P004 Changes to Engineering Standards.

UGLRL seeks to apply continuous improvement processes to standards & codes through the life of the UGLRL CRN management contract. The improvements shall be based on the experience of UGLRL in managing the Country Regional Network and wider rail industry developments in rail technology and standards and codes.

6.2 Objectives for Standards & Codes development

Specific objectives for Standards & Codes management are set out in Section 5.2 of CRN GM 001. The objective for Standards & Codes development is to improve the standards to achieve more effective control of safety risk and more effective asset management of the CRN.

6.3 Standards & Codes development requirements

The core requirements for Standards & Codes are set out set out in Section 5.3 of CRN GM 001.

6.4 Risk management

Risks associated with the establishment and implementation of Standards & Codes are managed in accordance with the CRN Risk Management Framework which provides the overarching risk management guideline.

The CRN Risk Management Framework includes the Health, Safety and Environmental (HSE) Risk Register.

The HSE Risk Register includes those risks and associated controls that are required to be implemented in the establishment and implementation of standards and codes.

7 Management of Standards & Codes development

7.1 Relevant personnel

Key personnel carrying out activities for Standards & Codes development include:

- Head of Assets and EngineeringHead of Assets and Engineering
- Principal Engineers
- Technical specialists, including Standards & Codes advisors, developers, and reviewers including independent reviewers
- Stakeholder representatives on the Standards Technical Committee

7.2 Responsibility for standards and codes

The Head of Assets and EngineeringHead of Assets and Engineering holds overall accountability for CRN standards management processes and is directly responsible for the General Standards ("CRN G…" series). The Principal Engineers are individually responsible for the Standards & Codes within their discipline. This responsibility includes monitoring of currency and adequacy of engineering Standards & Codes managed by TfNSW on CRN behalf and proposing improvements consistent with industry developments and maintenance practices.

7.3 Standards Technical Committee Charter

7.3.1 Role

The Standards Technical Committee (STC) shall overview the management, development, review, authorisation, publication, and communication of Standards & Codes.

7.3.2 Scope

The Committee is responsible to the Head of Assets and EngineeringHead of Assets and Engineering for:

- Currency and adequacy of Standards & Codes (i.e., Do Standards & Codes reflect current best practice and are they appropriate for CRN operations?)
- Communication of Standards & Codes changes
- Reviewing and endorsing proposals for changes to TfNSW managed Engineering Standards & Codes
- Reviewing and endorsing content developed for making changes to TfNSW managed Engineering Standards & Codes
- Adequacy of the Operational Maintenance Standards development process
- Timeliness of Standards & Codes changes
- Reviewing and approving Operational Maintenance Standard change proposals
- Approving and authorising issue of new and altered Operational Maintenance Standards
- Currency and adequacy of competencies and authorities of those involved in Standards & Codes management activities

The Committee discharges this responsibility by:

- Overviewing Standards & Codes performance within the Asset Management System
- Setting Standards & Codes strategy
- Reviewing relevance of current Standards & Codes

- Reviewing relevant reports, including audit, incident reports and regulator / other operator safety notices relevant to Standards & Codes
- Overviewing the priorities, resources and program for continuous improvement in Standards & Codes development
- Reviewing the development program
- Keeping abreast of Standards & Codes developments, nationally and internationally
- Accessing and reviewing technical literature and participating in technical forums
- Rail and engineering industry engagement
- Facilitating interfaces between UGLRL and national standards committees
- Participating in the establishment of and changes to Standards & Codes including review of concessions and waivers against Standards & Codes and type approvals
- Reviewing recommendations for draft standards changes and making recommendations to the Head of Assets and Engineering for approval
- Overviewing the work of independent subject matter specialists or discipline-specific committees
- Facilitating peer review of Standards & Codes where required
- Configuration signoff / facilitation (as part of CRN's configuration management process)
- Overviewing the processes for authorities, licenses and competency certification, associated with Standards & Codes
- Overviewing and facilitating the effective communication of Standards & Codes and rail technical developments to users of the Standards & Codes

7.3.3 Authority

The Committee's authority is based on the authority of the Committee's Permanent Members and any authority conferred by the Head of Assets and EngineeringHead of Assets and Engineering on other Members of the Committee. The Committee has authority to:

- Approve priorities for development
- Endorse Standards & Codes for authorisation by the Head of Assets and EngineeringHead of Assets and Engineering.

On discipline-specific matters the Committee is to heed the recommendations of the Principal Engineers in exercising this authority. This qualification is on the proviso that such recommendations are based on application of appropriate processes and supported, where necessary, by independent subject matter specialists.

7.3.4 Membership

The Committee shall consist of the following Permanent Members:

- Head of Assets and Engineering Head of Assets and EngineeringPrincipal Engineers covering the engineering disciplines of the CRN standards and codes
- Civil Maintenance Engineer

The following personnel may be invited to attend as required:

- Infrastructure Maintenance Manager
- Signalling Manager
- Routine Maintenance Manager

The Head of Assets and Engineering may appoint other personnel to the Committee as required to support the Committee's activities.

7.3.5 Protocols

The Committee shall meet at least 4 times per calendar year at intervals not exceeding 4 months. Additional meetings shall be held where justified by the volume or urgency of matters to be considered. The Head of Assets and EngineeringHead of Assets and Engineering shall call any such additional meetings on the advice of Committee Members.

A quorum will consist of 4 Permanent Members, with the relevant Principal Engineer or delegate required to attend where discipline specific matters are considered. Attendance may be in person or by video / phone hook-up.

The Permanent Chair of the Committee will be the Head of Assets and EngineeringHead of Assets and Engineering. The Head of Assets and EngineeringHead of Assets and Engineering may delegate this role to another Permanent Member of the Committee.

The standing agenda of the Committee will comprise:

- Confirmation and review of minutes from the previous meeting;
- Consideration of reports from the Principal Engineers (covering amendments to standards, concessions, waivers and type approvals);
- Consideration of other relevant reports;
- Consideration of specific matters listed in the agenda of each meeting; and
- General Business.

Formal records of the meeting, including recommendations of the Committee are to be prepared and maintained.

Decisions are to be reached by agreement. Voting will NOT be used to reach decisions.

7.4 Competencies and Authorities

Members of the Committee will be deemed competent to perform in that role by virtue of one of the following:

- By holding the competencies required to occupy a management position nominated as a Permanent Member of the Committee, as defined in the Standards Technical Committee Charter (refer Section 6.3.4 above) and evidenced in the UGLRL O&M Services TCARP,

  or

- Being a delegate of a Permanent Member of the Committee, where the delegator has determined that the delegate holds an appropriate organisational position identified in the UGLRL O&M Services TCARP and is properly briefed to represent them on the agenda item/s;

  or

- The individual is nominated by the Head of Assets and Engineering based on their organisational position identified in the UGLRL O&M Services TCARP and is properly briefed on their role and responsibilities.

Technical specialists undertaking development or reviews of standards, or providing technical advice related to standards, shall be selected either:

- based on their organisational position identified in the UGLRL O&M Services TCARP for internal resources, or
- by assessment against the competency requirements identified in Table 1 and Table 2 for external resources.

The appointment of all technical specialists must be approved by the Head of Assets and Engineering or, where work is contained within an engineering discipline, by the relevant Principal Engineer. This appointment shall incorporate the delegation of engineering authority to conduct the identified activities. All technical specialists shall be properly briefed on their role and responsibilities prior to commencing the work.

Table 1:Competencies Required for a Standards & Codes Advisor

Competency \ Task	Standards Advisor		
	1. Assess standards performance*	2. Identify, analyse, develop and assess solutions to standards issues*	3. Controlled development of standards and changes*
1. Specific qualifications and current industry leading experience in the discipline	M	M	M
2. Current experience in development or application of standards withinrelevant area	M	M	M
3. Current experience in analysing and managing complex technical issues	M	M	N/A
4. Proficient in articulating and documenting complex technical issues	N/A	M	M
5. Understanding and current experience in risk management	M	M	M
6. Experience in working within a safety management system	D	M	M
7. Current broad experience across standards, design, fabrication & construction, maintenance and operations	D	D	D
8. Understanding of OHS requirements	D	D	D
9. Understanding of Rail Safety Requirements		M	M
10. Understanding of Environmental Management Requirements		D	D
11. Understanding of Asset Management Process	D	D	D

Note 1: "M" = must have competency, "D" = desirable competency*

Table 2:Competencies Required for a Standards & Codes Reviewer

Competency \ Task	Review Draft Standards and Codes		
	1. General review across disciplines	2. General review within discipline	3. Subject Matter Specialist
1. Specific qualifications and current industry leadingexperience in specific task area or discipline	M	M	M
2. Current experience in development or application ofstandards within relevant area	D	D	D
3. Current experience in analysing and managing complextechnical issues	D	M	M
4. Proficient in articulating and documenting complextechnical issues	D	D	D
5. Understanding and experience in risk management	M	D	D
6. Current cross-discipline management experience	M	D	N/A
7. Experience in working within a safety managementsystem	D	D	D
8. Current broad experience across standards, design, fabrication & construction, maintenance and operations	M	D	N/A
9. Understanding of OHS requirements	D	D	D
10. Understanding of Rail Safety Requirements	M	M	D
11. Understanding of Environmental Management Requirements	D	D	D
12. Understanding of Asset Management Process	D	D	D

*Note 2: * "M" = must have competency, "D" = desirable competency*

8 Assessment of the effectiveness of Standards & Codes

8.1 Assessment criteria

The effectiveness of Standards & Codes shall be assessed against the following criteria:

Criteria	Guideline Considerations
1. Safety	• Effectiveness of Standards & Codes controls called up by theUGLRL Health, Safety and Environmental (HSE) Risk Register
2. Reliability	• Assurance of reliability of assets and the operational reliability ofthe UGLRL network
3. CRN Configuration	• Relevance of the Standards & Codes to the current or proposed CRN asset and rolling stock configurations
4. Interfaces	• Compatibility of UGLRL Standards & Codes in interfacing with the Standards & Codes of other organisations and rail industry frameworks • Compatibility of UGLRL Standards & Codes with the requirements imposed by physical interfaces with other railnetworks and external parties
5. Cost	• Life cycle benefits and costs of compliance, particularly againstalternative standards provisions or other control measures
6. Compliance	• Compliance with UGLRL Safety Management System (SMS),incorporating requirements of relevant rail safety and occupational health and safety legislation. • Compliance with UGLRL Environmental Management Plan andrelevant environmental legislation • Compliance with UGLRL management policies and procedures

Assessment of the effectiveness shall consider control of risk associated with the above criteria.

8.2 Assessment activities

Principal Engineers shall undertake activities for the assessment of the effectiveness of Standards & Codes applied to the CRN. These activities shall include:

- Sample inspection of assets and engineering activities for compliance
- Review of asset performance, represented by data in the Asset Management System
- Review of CRN reliability and operational performance
- Review of, or change to, the UGLRL Health, Safety and Environmental (HSE) Risk Register
- Consultation with Standards & Codes users

- Asset design review
- Review of rolling stock information submitted for approval to operate on the CRN
- Review of incident data
- Keeping abreast of rail industry developments in standards and codes
- Review of waivers and design concessions
- Review of performance of type approved equipment
- Consultations with suppliers and manufacturers
- Periodic review of Standards & Codes in relation to improvement logs and need for updates.
- Audit reports

All Standards & Codes documents shall be reviewed for effectiveness and requirements for update within 5 years of the previous review.

9 Identification of potential changes to Standards & Codes

9.1 Sources of Standards & Codes change proposals

The factors which may instigate a need for changes to Standards & Codes are outlined in Section 9.1 of CRN GM 001. Users of the UGLRL Standards & Codes have an obligation to identify and report on issues which may arise in the application of Standards & Codes and to make suggestions for improvements to the Standards & Codes.

The appropriate change pathway is selected based on who holds management responsibility for the Standards & Codes being proposed to change. Change pathways are described in Section 6 of CRN-E-P004 Changes to Engineering Standards.

Potential sources of proposals for Standards & Codes change include:

- The assessment activities of the Principal Engineers outlined in Section 7.
- Changes to the UGLRL Health, Safety and Environmental (HSE) Risk Register
- Requests for change from Standards & Codes users
- Changes to the operation and / or configuration of the CRN
- Wider rail industry standards development
- Changes in technology

9.2 Registering and assessing Standards & Codes development proposals

Users of Standards & Codes documents may report issues which arise in the application of Standards & Codes or request changes to standards by phone or email. Records of the requests shall be maintained by the Principal Engineers.

The relevant Principal Engineers shall carry out an initial assessment of the requests. The assessment shall be based on both the criteria outlined in Section 7.1 and consideration of the benefits and costs of the change in relation to the existing configuration of standards and codes. The outcome of this assessment may result in a decision to;

- (in the case of safety critical matters), issue an interim engineering instruction and proceed with a high priority change to the standard or code. If the required change is to an engineering standard or code managed by TfNSW, prepare a proposal for change in consultation with the relevant standards lead in TfNSW-AMB; or
- list in an improvement log for further investigation and development; or
- list in an improvement log for minor changes, deferred to when the standard or code is routinely updated; or
- not change standard or code, potentially with a recommendation back to the initiator of the request to undertake alternative measures

The initiator of the request shall be advised of the outcome of this assessment by the relevant Principal Engineer who shall maintain a record of all responses.

Principal Engineers shall routinely report such requests and outcomes of assessment to the Standards Technical Committee.

All requests shall be registered in a Standards & Codes improvement log.

9.3 Setting of priorities and resourcing of Standards & Codes development

Principal Engineers shall maintain improvement logs of proposals for investigation or changes of Standards & Codes. Items in the improvement log will be categorised by priorities based on:

- Assurance of safety; and
- Benefits and costs of the change, including consideration of the availability of key technical personnel

The Principal Engineers shall establish and update a program for Standards & Codes review and development, including addressing matters in the improvement log. The program shall be reviewed for endorsement by the Standards Technical Committee at least once per year. The program shall include proposals for review and development of operational maintenance standards as well as anticipated involvement of UGLRL Principal Engineers in proposed Engineering Standards & Codes review and developments by TfNSW.

When participating in Engineering Standards & Codes reviews and developments managed under the TfNSW standards management framework, the Principal Engineer shall represent the interests of UGLRL and consider the implications the change will have on the delivery of the O&M Services under the Contract. The Principal Engineer shall consult and seek advice from appropriate business stakeholders affected by the change and the Head of Assets and Engineering before agreeing to any such change.

Where significant expenditure is required for standards development and implementation, budget submissions and approvals for expenditure and monitoring of progress and cost will be managed through the Standards Technical Committee.

10 Research and development for Standards & Codes change

10.1 Investigating and researching Standards & Codes issues

The basic requirements for the development of a new or changed standard or code are outlined in the following sections.

10.1.1 Standards & Codes Controls

Changes to Standards & Codes must consider any controls required by the Health, Safety and Environmental (HSE) Risk Register or other UGLRL risk assessments, and should consider adopting these controls into the Standard or Code where appropriate.

10.1.2 Design Inputs

Standards & Codes updates must consider inputs from design of assets. This could include existing design requirements not previously captured by the document or new design work done since the last publication of the document.

These inputs include:

- Key client requirements and objectives
- Legislative and Regulatory requirements that must be taken into account
- CRN Standards & Codes, Australian and other standards applying to the change
- Other references (including old Standards & Codes, internal background documents, workshop outcomes, incident investigations, failure data etc.)
- Interfaces – assess potential changes for impact on interfaces with:
  - Other discipline activities/infrastructure
  - Rollingstock or operations
  - Transit space

10.1.3 Research requirements

Depending on the requirements of the brief, research the requirements of Australian and international standards, other railway standards and practices and reference material.

When researching design, maintenance and construction Standards & Codes, reference should be made to available failure and performance data.

Reference should also be made to records of previous versions of Standards & Codes as a means of establishing reasons for current limits. Conversation with experienced design, construction and maintenance personnel will also assist.

10.1.4 Investigation

Determine whether sufficient information is available or whether a more detailed investigation is required to establish appropriate limits for inclusion in a standard

If further investigation is required seek advice. Additional information may be available from field staff or it may be necessary to undertake a specialist investigation.

10.1.5 Hazard & Risk Analysis

Identify and assess hazards that may be introduced by the proposed change in standards and codes, including:

- Limits proposed are technically unachievable

- Limits proposed increase probability of derailment/collision
- Limits proposed increase maintenance costs
- Design Limits can be interpreted to give inappropriate design solution
- Insufficient information provided to give design solution
- Inspection/maintenance regime etc. - will it need to change?
- Inspection method inappropriate for detection of failure mode
- Inspection period inappropriate for timely detection of failure mode
- Construction/Repair method inappropriate to achieve requirements

10.1.6 Rollingstock Considerations

For changes to the TOC Manual and Rolling Stock Standards, consideration of interface risks between rolling stock and the CRN infrastructure and operations.

Proposed amendments to the requirements of the TOC Manual may result from any of the following:

- Improvements, errors or inconsistencies within the standard are identified through an ongoing review and continual use of the standard.
- To capture the content of relevant TOC Waivers.
- Changes to infrastructure where it is identified in the document.
- Operator request for new or modified vehicle registration
- Incident investigation.
- Office of the National Rail Safety Regulator requirements.
- Requests for review of conditions from vehicle Owners and or Operators of rolling stock.

10.1.7 Integrated Support Analysis

If Integrated Support Analysis has been identified as a requirement, then it should be undertaken at this time. Some issues to be considered include:

- Have maintenance support requirements been considered?
- Is new maintenance equipment required?
- Have other publications that need to be altered been identified?
- Is staff training required for new/changed publication?

10.2 Drafting Standards & Codes change proposals

Standards & Codes shall be drafted in accordance with the CRN Engineering Manual CRN GM 004 Writing Requirements and Guidelines for Operational Maintenance Standards. TfNSW standards publication style guides and template requirements will also be applicable to changes proposed for engineering Standards & Codes managed by TfNSW on behalf of the CRN. Refer to table in Section 4.2 of CRN-E-P004 to decide on the appropriate drafting style to be used for the proposed Standards & Codes change.

11 Review and assessment of changes

11.1 Review of Standards & Codes changes

11.1.1 Purpose of review

The purpose to the review is to ensure quality, clarity and accuracy of technical content changes in a standard or code and their associated risks.

The output of the review shall be documented in a CRN Standards Change Proposal Risk Review Form (See Appendix 2) and, where necessary, on relevant design files for the change.

11.1.2 Inputs to review

- Reasons for the standard or code change
- Identification of the standard or code change
- Scope of standard or code coverage
- Identification and assessment of the impacts of the change
- Risk identified to the development of the standard or code
  - Risks related to content
  - Risks related to implementation
- Interfaces
  - affected by a change to a standard or code
  - a change to an interface that will affect a standard or code
- Technical content change as identified in tracking document
- Summary details of stakeholder consultation
- Implementation strategy

11.1.3 Output of review

The following are considerations for review:

- Adequacy and completeness of inputs
- Whether technically appropriate
- Right for CRN configuration
- Robust integrity of asset
- Are identified risks adequately controlled by the standard or code?

11.2 Verifying and validating Standards & Codes changes

11.2.1 Verifying Standards & Codes changes

Design verification is the process of reviewing and attesting that the output of the standard or code development conforms to the design input requirements.

- Verification shall, as a minimum, cover the following aspects:
- Key assumptions and standards are appropriate for specification requirement and intended use
- Independent reviews have been completed and documented (if required)
- Hazard and risk analysis has been completed and documented

- Interface requirements have been verified
- Documentation is completed and ready for release.
- Validation requirements have been defined
- Maintenance, training and spares requirements have been reviewed and updated
- Operating and maintenance manuals have been reviewed and updated

11.2.2 Validating Standards & Codes changes

Validation is the process of ensuring that the final documented change conforms to user requirements. It represents the final stage in the process of ensuring that new or changed Standards & Codes are fit for the intended purpose before release for use.

Depending on the nature and complexity of the proposed changes to the standard or code, validation may include:

- Use of sample field data to test the outcome of calculations or processes
- Sampling of representative users to test that the document meets the requirements for presentation and useability
- For complex changes it may include introduction of the changes on a trial basis (either geographically or to a defined group in UGLRL) to test that the change meets its intended purpose.

12 Approval and authorisation

The Standards & Codes applicable to the CRN were baselined at contract commencement as per the Table in Section 4.2 of CRN-E-P004 – Changes to Engineering Standards.

Changes to the Standards & Codes baseline in the way of new and altered Standards & Codes including withdrawals shall be both approved and authorised. This process, similar in principle to the configuration management process described in the CRN-PLN-AMS-713026361-304 - Configuration Management Plan, is governed by the Standards Technical Committee.

The Principal Engineers are responsible for approving the technical content of Standards & Codes within their discipline.

The Head of Assets and Engineering is responsible for approving the General Standards (GM Series of documents).

The Standards Technical Committee considers assurance evidence associated with the change and endorses Standards & Codes for authorisation by the Head of Assets and Engineering.

All submissions for new Standards & Codes and changes to existing Standards & Codes shall be formally presented to the Standards Technical Committee. Documentation presented shall include

- Standards Technical Committee Submission Form (See Appendix 1)
- CRN Standards Change Proposal Risk Review Form (See Appendix 2) or in the case of a change to a TfNSW managed standard or code in the TfNSW-AMB Standard Project Proposal Form.
- Documents referenced in the STC Change Submission

All submissions shall be appropriately recorded in the minutes of the Standards Technical Committee when endorsed by the STC and authorised by the Head of Assets and Engineering as its Chair.

Operational Maintenance Standards changes come into effect when they are published as approved and authorised standards on the UGLRL CRN website (Refer to Section 6.3 of CRN-E-P004).

Changes to Engineering Standards & Codes managed under the TfNSW standards management framework come into effect when approved by the TfNSW-AMB CCB and published on its standards website (refer to Section 6.2 of CRN-E-P004).

13 Implementation

13.1 Implementation plan

For every change to a standard or code, the requirements for implementation shall be considered and a plan developed for implementation of the change.

The plan shall consider:

- pre-conditions for the change to become effective
- SMS requirements for assessing and managing change, including requirements for notification of change in accordance with Clause 9 of the Rail Safety National Law National Regulations to ONRSR
- personnel briefing and consultation
- changes to training, competencies, licensing, or granting of engineering authority
- risk controls required by the risk assessment of changes to technical content of standards
- communications to interfacing stakeholders, including contractors, suppliers and rolling stock operators
- requirements for addressing potential non-compliance resulting from the change, including the existing CRN configuration, operator rolling stock, supply contracts and works in progress.
- verification and / or validation activities
- a program for implementation, including the date on which the change becomes effective
- monitoring and review of the implementation plan.

13.2 Communications

The implementation plan shall include actions for communications of Standards & Codes changes: These communications may include;

- Advice to relevant users of the standard or code changes;
- Briefing of users whose work practices and procedures may be directly affected by the change;
- Advice to interfacing parties that may be affected by the change; and
- Notification on the UGLRL website of the change

13.3 Finalisation of a standard or code change

A change to a standard or code shall be considered as complete when;

- the required actions of the implementation plan are complete;
- the controls required by the risk assessment of the standard or code change have been effected;
- residual risk of the standard or code change has been transferred to an appropriate owner of the residual risk; and
- an implementation completion report has been submitted to, and reviewed by, the Head of Assets and Engineering.

Appendix 1 CRN Standards Change Proposal Risk Review

CRN STANDARDS CHANGE PROPOSAL RISK REVIEW

From CRN GM 002 – V 1.0 November 2021

Standard	**Number**	**Title**	**Version**
	CRN XX NNN	**Title**	**n.n**

Type of change	New standard ☐ Typos, grammar etc. ☐ Changed presentation ☐ Changed /new/ deleted limits /requirements ☐ Changed /new/ deleted method ☐ New component ☐ Withdrawn standard ☐ Product Approval. ☐
Change detail	*Include reference to Needs Log Items Waivers and Technical Notes included (and deleted)*
Interfaces	***RISK -*** *Change to standard does not account for interfaces affected by change* ***CONTROL –*** *Establish the interfaces below and determine level of involvement required in development and/or review*
Are there interfaces with other disciplines? What interfaces?	YES☐ NO☐
Affected by change	Rolling stock ☐ Signalling ☐ Operations ☐ Civil infrastructure ☐ External Infrastructure ☐ Designers, maintainers, constructers competencies ☐ Training Material ☐ Infor ☐ Other Systems ☐ ..... *(Nominate systems affected)*
Will affect the change	Rolling stock ☐ Signalling ☐ Operations ☐ Civil infrastructure ☐ Designers, maintainers, constructers willingness to comply ☐ Designers, maintainers, constructers ability to comply ☐ Designers, maintainers, constructers competence to comply ☐ Infor ability to reflect change ☐ Other Systems ability to reflect change ☐ ..... *(Nominate systems affected)*
Peer Review Requirements	***RISK -*** *New, changed or deleted requirements /limits are technically unachievable.;* ***RISK -*** *Change to construction/repair method is inappropriate to achieve requirements;* ***RISK -*** *Insufficient information provided to give design solution* ***CONTROL –*** *Establish the review needs below and determine level of involvement required in development and/or review*

Are changes or change implications major?	Are the changes of interest to many?	Are the changes technically complex
YES☐ NO☐	YES☐ NO☐	YES☐ NO☐

Peer Review method *Use the answers to the questions above to determine the review method*	Client Review ☐ Stakeholder Review ☐ Limited Review ☐ Internal Review ☐

Peer Reviewers *Add entries on a file if necessary*	Stan'd reps ☐	Designers ☐	Maintenance Reps ☐	Renewals Reps ☐	Interface Reps ☐

Hazards	***RISK –*** *Changes may lead to increased risk of infrastructure/operational failure or degraded performance* ***CONTROL –*** *Establish the hazards and undertake a risk review of the proposed changes*		
New, changed or deleted requirements /limits MAY increase risk.		YES☐ NO☐	*If YES complete a Detailed Risk Review See attached Risk Review)*
Design Limits MAY BE interpreted to give inappropriate design solution		YES☐ NO☐	
Change to inspection method MAY BE inappropriate for detection of failure mode		YES☐ NO☐	
Change to inspection period MAY BE inappropriate for timely detection of failure mode		YES☐ NO☐	
Are there other hazards?		YES☐ NO☐	
Is a Risk Workshop required?		YES☐ NO☐	
Lifecycle costs	***RISK –*** *New, changed or deleted requirements /limits increase asset life cycle costs* ***CONTROL –*** *Estimate the impact for assessment prior to implementation*		
Does the change increase asset lifecycle cost		YES☐ NO☐	*If YES document in file*

CRN STANDARDS CHANGE PROPOSAL RISK REVIEW

			From CRN GM 002 – V 1.0 November 2021
Integrated Support Requirements	***RISK –*** *Change to standard impacts inspection/maintenance regime* ***CONTROL –*** *Assess impact of change*		
Inspection/maintenance regime etc. - will it need to change?		YES☐ NO☐	*If YES document requirements*
Is new maintenance equipment required?		YES☐ NO☐	
Do other publications require alteration?		YES☐ NO☐	
Communication	***RISK –*** *Insufficient communication to users of critical change to standard* ***CONTROL –*** *Establish method of communication*		
Is staff training required for new/changed publication? – Will Asset Managers/Designers/ Maintainer, Constructor understand documents and be able to find critical information – Will Asset suppliers understand documents		Notification ☐ Local updating ☐ Workshop ☐ Formal Training ☐	

Risk Review

Completed	*Date*	**Reviewers**	*Names*

CRN STANDARDS RISK REVIEW				CRN XX XXX Vn.n
Section	**Changes**	**HAZARDS**	**Risk Change I/R/N**	**Comment - justification**

Appendix 2 Standards Technical Committee Submission Form

Standards Technical Committee (STC)		
Submission on Change or Addition to Standard / Code	*From CRN GM 002*	
1. Submission details		
Submission Ref. No:		
Submission date:	*Date*	
Submitted by:	*Name*	
Position / role:	*Position*	
Purpose of submission:	☐ Inform / update the Committee on proposed changes ☐ Seek endorsement on the approach to change ☐ Seek endorsement for approval of the change ☐ Report implementation completion	
2. Reasons for the change		Attachment: Yes ☐ No ☐
3. Change identification, including technical content change		Attachment: Yes ☐ No ☐
The following documents are attached		
Document	**Identifier**	**Attachment**
4. Identification and assessment of the impacts of the change		Attachment: Yes ☐ No ☐

Standards Technical Committee (STC)			
5. Risk assessment of the change (See CRN GM 002 Appendix 1)			Attachment: Yes ☐ No ☐
Independent Subject Matter Specialist Review Required?: Yes ☐ No ☐			
6. Significant change requiring ONRSR Notification? (as per SMS CRN-PRC-RLS 45903266-177 Management of Change Procedure (Rail))	Yes ☐, No ☐		Attachment: Yes ☐ No ☐
7. Stakeholder consultation			Attachment: Yes ☐ No ☐
Stakeholder	**Required?**	**Complete?**	**Outcome**
1. CRN Infrastructure	☐	☐	
2. CRN Operations	☐	☐	
3. CRN Safety and Environment	☐	☐	
4. CRN Human Resources	☐	☐	
5. CRN Business	☐	☐	
6. External train operators	☐	☐	
7. Network interfacing AROs	☐	☐	
8. TfNSW CRN Contract Team	☐	☐	
Others?.....	☐	☐	

Standards Technical Committee (STC)			
Submission on Change to Engineering Standards			
8. Review outcomes			Attachment: Yes ☐ No ☐
9. Implementation requirements			Attachment: Yes ☐ No ☐
Submission			
Signed		Date	

Committee outcome			
Meeting Ref		Date	
Noted:	Yes ☐ No ☐	Endorsed	Yes ☐ No ☐
Notes / conditions			
Authorisation (STC Chairman)			
Signed		Date	

1. Implementation completion		Attachment: Yes ☐ No ☐
Changes complete?	Yes ☐, No ☐	
Risk controls implemented?	Yes ☐, No ☐	
Residual stakeholder issues?	Yes ☐, No ☐	
Comments on issues / lessons learned / recommendations for future		

Signed		Date	
Reviewed by STC Chairman			
Signed		Date	