UGL REGIONAL LINX

TRAIN CONTROL AND SIGNALLING TELEMETRY SYSTEMS – DESIGN MANAGEMENT PROCEDURE

CRN-PRC-SIG-713026361-1971

CRN SO 002

LINKING COMMUNITIES. CONNECTING CUSTOMERS.

Table of Contents

Document Control

Function	Position	Name	Date
Approver	A&E Manager	Lucio Favotto	27/01/2022

Revision	Issue Date	Revision Description
1.1	24/02/2022	UGLRL Operational Standards Template applied
2.0	27/01/2022	First approved and issued UGLRL version

Summary of changes made from previous version

Section	Summary of change
All	This document is based on the previous rail infrastructure maintainer (RIM). Full revision history is available on request from UGLRL.

1 Scope

The scope of this document is to define the Design Management Procedure used by UGL Regional Linx and its contractors to manage change to the configurations of its train control and signalling telemetry systems in support of the NSW Country Regional Network (CRN).

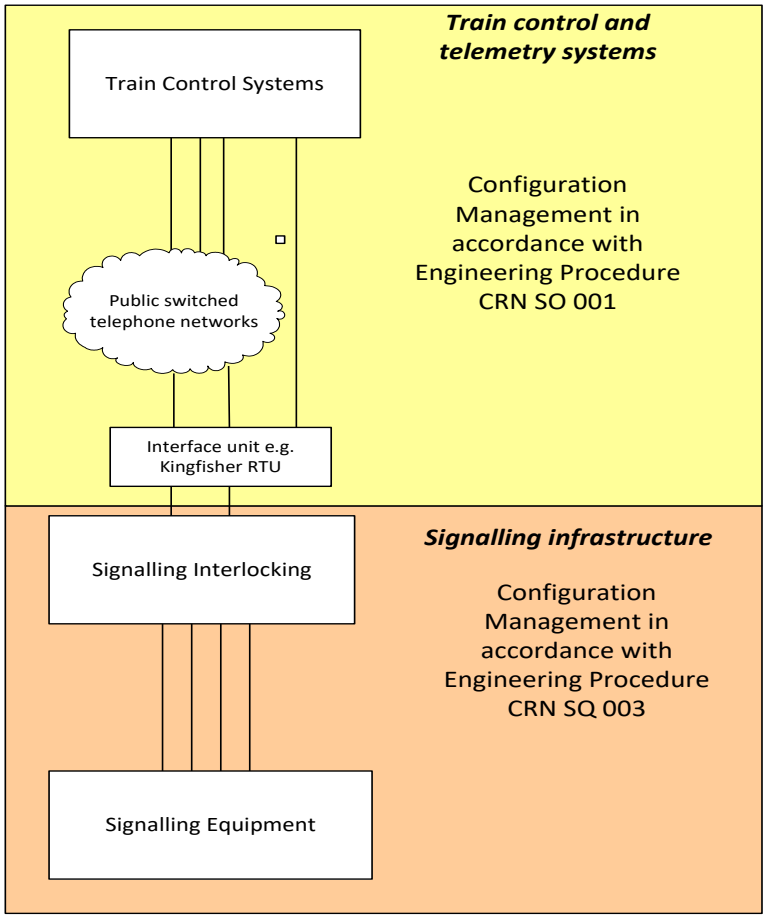
Contractors undertaking changes to the CRN signalling infrastructure must comply with this procedure as a condition of their engagement in those instances where the proposed changes to the signalling infrastructure require a change to the design of the John Holland train control and signalling telemetry systems that support implementation and commissioning of the infrastructure signalling works.

1.1 Relationship of Engineering Procedures

The scope of this John Holland Engineering Procedure (CRN SO 002) is defined by the train control and telemetry systems up to the point where the telemetry system interfaces to the signalling interlocking or field signalling equipment.

Design Management of the signalling interlocking and signalling equipment is covered by UGL Regional Linx Engineering Procedure CRN SQ 001. The following diagram shows the relationship and interface between these two standards and the signalling, telemetry and train control systems.

If the signalling field infrastructure requires a design change the work must be in accordance with UGL Regional Linx Engineering Procedure CRN SQ 001.



Configuration management of train control and telemetry, and signalling infrastructure

2 Objective

The objective of this document is to define the procedures used by UGL Regional Linx CRN and its contractors to manage changes to the configurations of its train control and telemetry systems.

3 Hierarchy

The following list defines the hierarchy of the change management process:

1. UGL Regional Linx CRN Network Operations Manager,
2. UGL Regional Linx CRN Principal Signal Engineer,
3. NMC Control Systems Manager,
4. Other contractors, subcontractors and suppliers.

3.1 Responsibilities

Responsibilities and authorities are assigned as follows:

UGL Regional Linx CRN Network Operations Manager:

1. Initiating Change Requests (for the train control systems), and
2. Approving Change Requests initiated by NMC Control Systems Manager.

UGL Regional Linx CRN Principal Signal Engineer:

1. Review and comment on proposed Change Request
2. Ensure contractors comply with this procedure when undertaking changes to the CRN signalling infrastructure,
3. Act as the interface between Control Systems Manager and the contractor, and
4. Coordinate the implementation and commissioning of the field signalling works with the changes required to the CRN train control and signalling telemetry systems.

NMC Control Systems Manager:

1. Initiating Change Requests,
2. Managing the Train Control design management process,
3. Providing the latest version of the software/data to the contractors
4. Accepting the delivery of Train Control design changes,
5. Approve minor system or database changes in instances where such authority is delegated by UGL Regional Linx CRN
6. Ensuring that the design management processes are reviewed on a regular basis including when this standard is updated, and
7. Managing the build and factory testing of configurations in support of approved Change Requests.

3.2 Works by Signalling Contractors

A Change Request Form is required to support changes to the train control systems necessary to support the design change to the field signalling infrastructure.

The UGL Regional Linx CRN Principal Signal Engineer is responsible for confirming the proposed signalling infrastructure change requires a change to the design of the train control and telemetry systems and must initiate the Change Request, the change request form must include the following information:

1. A description of the software and/or data changes,
2. Operating and maintenance procedures for hardware being provided by the contractor, including any atypical site specific functions,

3. Review design decisions made in support of the design and implementation of the proposed changes, and
4. Test Plan including names and the proposed test staff and their competencies.

The following information is to be provided in support of commissioning:

1. Test and Commissioning Plan,
2. Identification of any requirements relating to a test database or telemetry design, and proposed data loads for each design change,
3. Any requirements for the contractors to access the John Holland train control systems to assist in commissioning testing, and
4. Contact details of key staff should problems arise post commissioning.

3.3 Implementation of Design Changes

- Contractors must provide the software and/or data and associated support documentation at least 10 working days prior to the commissioning/specified date to provide UGL Regional Linx sufficient time to test the contractor-provided items.
- In some cases when the 10 working days cannot be achieved representation by the contractor to the CRN Principal Signal Engineer must be made for consideration for this period to be waivered . The representation must contain sound engineering reasons for this requirement to be waivered and/or the testing by UGL Regional Linx CRN to be waivered
- UGL Regional Linx's nominated manager of train control and telemetry systems is to test the contractor-provided software and/or data on appropriate test and development train control and telemetry systems:

1. The contractor is to correct any faults in the software and/or data that are identified as a result of testing by UGL Regional Linx.
2. The revised software and/or data is then to be provided to UGL Regional Linx for re-testing to verify that the identified errors have been corrected ad no new errors have been introduced.

- The NMC Control System Manager is responsible for managing the implementation of the new software and/or data onto the live train control and telemetry systems.
- On completion of the design alterations the contractors will hand the system back to the NMC Control Systems Manager who will complete any further testing and functional testing that will ensure that the design alteration is in accordance with the design.
- Post commissioning support shall be provided as agreed between the signalling contractor and UGL Regional Linx.

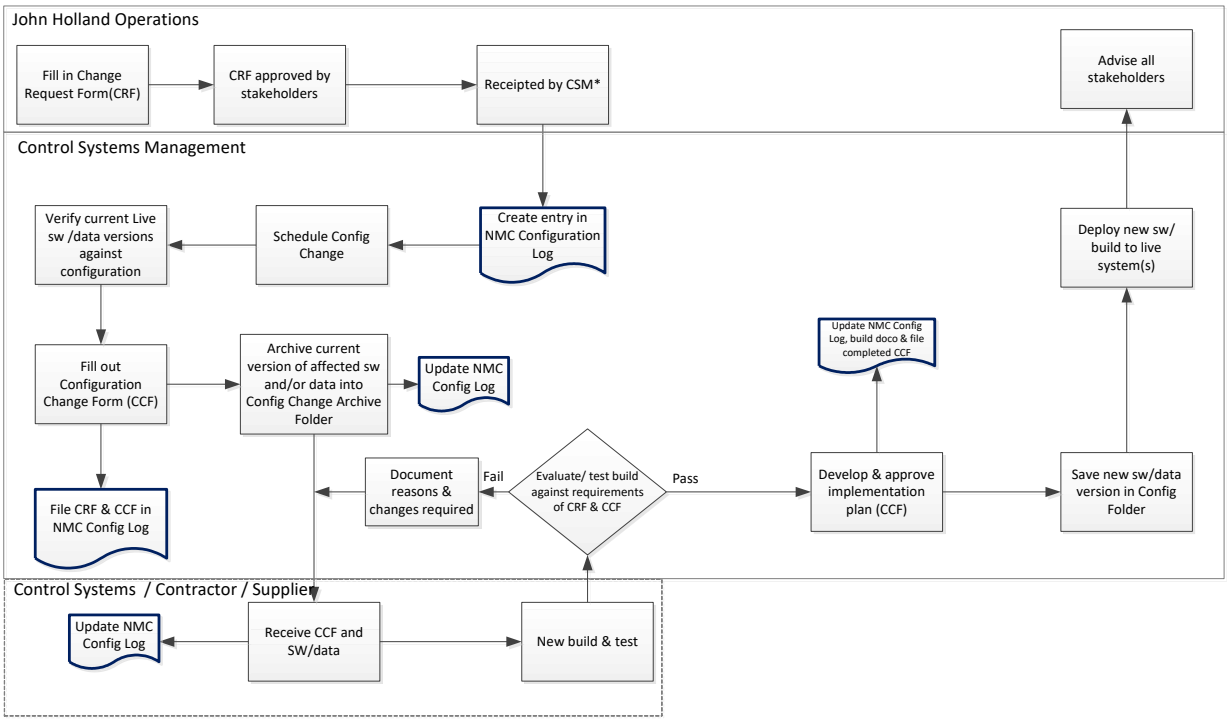
4 Design Change Process

The process shown in figure 1 below is to be followed when designing, testing and implementing changes to UGL Regional Linx's train control and signalling telemetry systems.

The design change process is based on:

(a) The client (UGL Regional Linx Pty Ltd stakeholders) approving proposed changes to the train control and telemetry systems,
(b) A staged (gated) process for managing the design and testing of the design change including a peer review of the test outcomes,
(c) Separate approval of the implementation plan for the design change, and
(d) The requirement to archive earlier configurations and all associated documentation to support rollback and audit of the process.

Configuration Change Process



*CSM: Control Systems Manager

4.1 Change Request Form

All changes to the UGL Regional Linx train control and telemetry systems are to be initiated via a Change Request Form (CRF) developed and maintained by UGL Regional Linx's nominated NMC Control Systems Manager. The Change Request Form is to contain the following as a minimum:

1. Unique change request number (assigned by NMC Control Systems Manager),
2. Description of the requested change,
3. Explanation of why the change is required including reference to signalling infrastructure projects that are necessitating the change and any proposed commissioning dates,
4. Details of the person requesting the change,
5. Details of the John Holland stakeholders approving the Change Request

4.2 Design Change Form

A Design Change Form (DCF) shall be used to document and track the design and implementation of a design change. The DCF shall be developed and maintained by the NMC Control Systems Manager. Completion of the DCF may be staged to reflect the staged nature of design/documentation, factory testing, peer review and implementation.

The DCF is to contain the following information as a minimum:

Change Definition & Approval:

1. Cross reference to the Change Request number,
2. DCF Number,
3. DCF Version,

4. Requestor's details,
5. Approver's details,
6. Identification of the systems (controlled component, software, firmware, data) prior to implementing this design change (i.e. the current baseline), and
7. Detailed description of the requirements (Requirements Definition).

Design Change:

8. Description of the Controlled Component / Data that will undergo a design change,
9. Where the affected system has an assigned Safety Integrity Level: A description of the process to be followed to ensure the SIL rating is not impacted by the change, including details of the independent safety assessor (as required),
10. Component / Data Modifications Undertaken to implement the approved change, and
11. Identification of the files modified and new files to support the change.

Testing:

12. Testing and verification undertaken to validate the changes and recording of test results.

Installation:

13. Installation details,
14. Related systems modified to support implementation of the change,
15. New equipment, firmware, software installed,
16. Any additional design notes,
17. Details of person recommending proceed with implementation,
18. Details of person approving implementation,
19. Details of person implementing the change, and
20. Details of Operations representative accepting the change.

4.3 Design Change Log

The NMC Control Systems Manager is to maintain a log of all approved CRs in a centralised register. The register is to include the following details:

a) Change Request number (unique identifier),
b) Date of Change Request,
c) Change Description including cross reference to planned changes to the field signalling infrastructure,
d) Person whom requested the change,
e) Status of the Change Request (Approved / Underway(In-Progress) / Closed),
f) Scheduled implementation date, and
g) Any additional relevant information.

5 Audit

The NMC Control Systems Manager is to maintain a log of all approved Design Change Requests (regardless as to whether the change was subsequently implemented or not) in a centralised register. The register is to include a copy of all documentation related to the CRF, including, but not limited to:

a) Change Request Form (CRF),
b) Design Change Form (DCF),
c) Requirements Documentation,
d) Independent Safety Assessments (where relevant),
e) Test and acceptance plans (and results) for new builds, and
f) Records of evaluation of new builds.

This documentation is to be made available to UGL Regional Linx to audit upon request.