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Rail Industry Standard for Network and Depot Interface Management – Isolation Documentation
Issue 1 September 2010
Rail Industry Standard

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Rail Industry Standard for Network and Depot Interface Management – Isolation Documentation

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Superseded or replaced documents

This Rail Industry Standard does not directly supersede or replace any other Railway Group documents.

This Rail Industry Standard addresses the withdrawal of RGS GL/RT1252 and the industry requirement to document operation at the Network and Depot Interface of Isolation Documentation processes.

The following Railway Group documents are superseded or replaced, either in whole or in part as indicated:

Superseded or replaced documents	Sections superseded	Date when sections are superseded
GL/RT1252, Issue One, Production and Management of Electrification Isolation Documents	4.3, 4.4, 4.5	4 December 2010

GL/RT1252, Issue One, Production and Management of Electrification Isolation Documents, ceases to be in force and is withdrawn as of 4 December 2010.

Supply

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Part 1 Introduction

1.1 Purpose and structure of this document

1.1.1 This document provides a voluntary standard on Network and Depot Facility Interface Management – Isolation Documentation for rail industry duty holders to use if they so choose.

GN01 This document has been prepared following review by ENE SC of a proposal for withdrawal of GL/RT1252 Production and Management of Electrification Isolation Documents, at which review it was agreed that the issue of local isolation instructions in connection with facilities adjacent to the Network was not properly covered by GL/RT1252, and that the withdrawal would leave a risk of incidents arising from loss of coordination between Network and facility processes. The review identified that while cooperation requirements existed and the existing standard was clear in application to the Network, its withdrawal would leave a clear need for a document addressing the Network to facility interface issue in order to ensure that other infrastructure controllers' isolation processes were robust and based upon correct and current information.

1.1.2 This document sets out principles to be applied in the production and management of isolation documentation and local isolation instructions in relation to electrified railway depot facilities not a part of the Network and which adjoin or are electrically interfaced to Network infrastructure. The prime purpose of the document is to address the interface between the Network and these depot facilities.

1.1.3 The document is set out in the form of standard requirements followed by guidance notes. Guidance notes are marked by a grey bar in the margin with the letters GN and sequential numbering, to differentiate them from the standard requirements to which they relate.

1.2 Application of this document

1.2.1 Rail Industry Standards are not mandatory unless or until an infrastructure manager or a railway undertaking specifies all or part of them in company procedures or contract conditions. Where this is the case the infrastructure manager or the railway undertaking will specify the nature and extent of application.

1.2.2 Specific compliance requirements and dates have therefore not been specified since these will be the subject of the internal procedures or contract conditions of the companies which choose to adopt this standard.

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1.5 Approval and authorisation of this document

1.5.1 The content of this document was approved by:

Energy Standards Committee on 29 April 2010.

1.5.2 This document was authorised by RSSB on 29 July 2010.

Part 2 Requirements for Network and Depot Interface Management – Isolation Documentation

2.1 Isolation instructions and local isolation instructions − procedure

2.1.1 Network Rail shall make available isolation documentation for electrified lines adjoining or electrically interfaced with electrified depots. The isolation documentation shall be produced, revised and controlled in a process which involves the operator of the facility and which ensures a clear linkage between the Network and facility documents.

2.1.2 The infrastructure manager for any electrified depot adjoining or electrically interfaced with the Network shall make available local isolation instructions for the facility. The local isolation instructions for the facility shall be produced, revised and controlled in a process which involves Network Rail and which ensures a clear linkage between the facility and Network documents.

2.1.3 Network Rail shall maintain and make available a register of the depots and the Network isolation instructions where such interfaces exist and this procedure may be applied.

2.1.4 The infrastructure manager for any electrified depot facility adjoining or electrically interfaced with the Network shall include within its safety management system a clear reference to the arrangements in place in respect of documents subject to this procedure.

2.1.5 The format, symbols, nomenclature etc of the isolation instructions and local isolation instructions shall be standard for all electrified lines so far as is reasonably practicable. Network Rail shall define standard practice in relation to isolation diagrams, isolation instructions, comprehensive track diagrams and operations diagrams, and offer best practice in relation to local isolation instructions.

2.1.6 Identification references on local isolation instructions shall be unique within the area controlled by an electrical control room, and additionally at the interfaces with abutting control areas, in the following aspects:

a) Section and feeder references

b) Electrical switching location designations

c) Structure number prefix letters

d) Diagram and instruction sheet numbering.

The Network infrastructure manager shall ensure that these identification references are allocated when required.

2.1.7 The Network infrastructure manager shall make available a validation procedure to be used for local isolation instructions which shall, as a minimum, contain the following elements:

a) Verification of format

b) Verification against installed infrastructure

c) Authorisation

d) Formalised feedback on safety aspects.

2.1.8 Any proposal to change the electrification design or arrangements such that any document that is subject to this procedure requires amendment shall, allowing a reasonable time, be assessed and consulted with interface party(ies) prior to implementation.

2.1.9 Any proposal to change local isolation instructions that are subject to this procedure shall be consulted with interface party(s) prior to implementation.

2.1.10 If there are local isolation instructions, then these shall be used. If local isolation instructions do not exist, then the Network Rail company isolation instructions for working on or about 25kV AC electrified lines and / or the Network Rail company DC electrified lines working instructions shall apply.

2.1.11 Duty holders should note that changes to local isolation instructions should be developed and consulted from the earliest possible date in order to ensure that, where necessary, the durations required for critical consequential activities are provided prior to the required implementation date, examples are shown below with typical timescales of eight to 12 weeks' notification:

a) Electrical control screen configuration – for example, SCADA system changes

b) Notification requirements for energising electrification equipment

c) Isolation diagram / comprehensive track diagram amendments.

2.2 Production of isolation instructions

2.2.1 The production, procurement and approval of isolation instructions for Network Rail controlled infrastructure is the responsibility of Network Rail.

2.2.2 The production or procurement of local isolation instructions for the depot locations (the facility) covered by this RIS is the responsibility of the infrastructure manager for that facility. Where such local isolation instructions interface with, or affect, Network Rail controlled infrastructure the local isolation instructions shall be approved to the extent that the isolation details are electrically correct and agreed by Network Rail. The approval of all other aspects of the local isolation instructions is the responsibility of the train or freight operating company.

2.2.3 A template for local isolation instructions is set out in Appendix 1.

Appendix A Template for Local Isolation Instructions

The content of this appendix is not mandatory and is provided for guidance only

Purpose

To detail the local isolation instructions for [xxxx] depot facility.

Scope

The depot roads and associated electrical subsections that the local isolation instructions apply to.

Definitions

General

Specify general or location specific safety information or amendments to safety information.

Specify personnel qualified (certificated competent person) to carry out local isolations, and their responsibilities.

Reference shall be made, but not specifically limited to:

a) A description of the depot road(s) and the corresponding electrical subsection(s)

b) A description of the competence requirements for personnel to work under the local isolation Instructions which shall define the local isolation document / instruction procedures in which they are required to be certificated competent and include reference to the competence assessment, maintenance and recording requirements for these procedures

c) The means of protection against the movement of vehicles

d) The method of blocking to electric trains in accordance with specified operating instructions

e) The requirement for notification of the electrical control operator

f) The presence of any other electrical hazards that have to be taken into account

g) The use of portable earthing equipment or short circuit bars / short circuiting straps

h) Carrying out the local isolation and earthing procedure in accordance with the local isolation Instructions and Network Rail instructions for 'Working on or about 25kV AC Electrified Lines' or the 'DC Electrified Lines Working Instructions'

i) Facilities for carrying out the isolation – for example, switches, interlocking and indicator lights

j) The custody of keys, personal padlocks etc

k) Operating and maintaining a record of isolations undertaken in the depot

l) A site layout diagram or drawings / photographs may be included in the local isolation instructions where this will assist.

Carrying out the local isolation

The local isolation instructions shall specify additional location specific information or amendments that shall include but not be limited to:

a) The identity of the working limits of the electrical subsection(s)

b) The identity and location of the switch(es) to be operated, the position to be operated to and, if appropriate, the location of the switch key box(es)

c) Identity of switch(es) that must remain in their 'normally open' position, and alternate feed switches which must not be in their alternate feed position

d) A list of the equipment required for application of the local isolation instructions

e) The location of the local earth(s) to be applied (and the tests before their application) and whether single or duplicate

f) The location of any short circuiting straps to be applied

g) The requirements for the use or issue of personal padlocks or the issue of keys, as appropriate

h) The procedure in the case of an isolation of an abutting electrical subsection where local isolation is not allowed

i) The procedure for making the appropriate entry in the isolation record book

j) The procedure for cancelling the isolation

k) Any instructions for the site addressing specific equipment requirements such as a ladder procedure, powered plant procedure, or fall arrest system procedure

l) Procedure for the relief / change of competent person.

Reference documents

The local isolation instructions shall specify the diagrams and plans covering the areas over which they apply.

Appendix

Site / location diagram / sketch.

Template local isolation instruction equipment list

AC equipment:

Site specific competence documentation

Key cabinet padlock

Isolation padlock

Gate padlocks

Isolation registers

Portable earthing equipment

Voltage testing device.

DC equipment:

Site specific competence documentation

Short circuiting strap

Short circuiting bar

Testing device

Isolation registers.

Definitions

Competent person

A person trained, assessed and certificated to carry out the particular duties specified in these instructions.

Comprehensive track feeding diagram (DC electrification)

An isolation diagram showing the DC electrified lines, the Conductor Rail Equipment (CRE) sectioning and feeding arrangements together with signal and point numbers. It also provides additional information showing bridges, platforms, tunnels and other significant features.

Electrical control operator

The person having control of the power supply to the electric traction system and who is responsible for all switching operations, and isolations of electrical equipment and switch outs thereon, and is certificated as competent in these duties.

Electrical control room

The location of the apparatus for the remote control of the equipment associated with the electric traction system, and the staff who operate it.

Facility

The depot or location that is not part of the Network and to which the local isolation instructions apply.

Isolation diagram

A diagram denoting the electrified lines, the overhead line equipment sectioning, switching and feeding arrangements, together with certain relevant signal and point numbers, adjacent overhead lines and other relevant information.

Isolation documentation

A suite of documents, produced specifically for the management and implementation of electrical safety, including diagrams and instructions, and containing all the operational information and instructions concerning electrification fixed equipment and such relevant information concerning signalling, track and other infrastructure as is necessary. Isolation instructions will include, but not necessarily be limited to:

a) Isolation diagrams

b) Track comprehensive diagrams (d.c.)

c) Bonding plans

d) Isolation documents

e) Isolation instructions for operating staff

f) Local isolation instructions

g) Instructions concerning electrical switching

h) Limits of working and limits of isolations.

Isolation instructions

Instructions which specify for each electrical section or subsection of overhead line equipment the electrical switching which has to be carried out to effect an isolation, and the associated limits of the isolation for the purposes of issuing overhead line permits.

Local isolation instructions

Instructions for isolating and earthing overhead line equipment or making safe d.c. electrification systems at specific locations carried out locally by a person having local control over train movements.

Network

Network Rail controlled infrastructure.

Portable earthing equipment (AC electrification)

Equipment applied to overhead line equipment which is normally live, to connect it to the traction return running rail either directly or to a structure which is itself connected thereto.

Short circuiting bar (DC electrification)

A device for electrically connecting a conductor rail to an adjacent traction return rail in an emergency.

Short circuiting strap (DC electrification)

A device for electrically connecting a conductor rail to the traction return running rail during a planned or local isolation.

Supervisory Control And Data Acquisition (SCADA)

A system for controlling the electrical power supply.

Switch

A device for opening or closing an electrical circuit. Examples of switches are:

Hook switch (DC electrification)
A switch attached to the conductor rail that allows a sub-section of conductor rail to be electrically separated from another sub-section of conductor rail.

Track isolating switch (DC electrification)
A switch by the track in a locked housing that allows a sub-section of conductor rail to be electrically separated from another sub-section of conductor rail.

Section switch (AC electrification)
A switch mounted on a structure, provided to connect one section or subsection of overhead line equipment to another.

Overhead line switch (AC electrification)
A non-load breaking device for opening or closing an electrical circuit.

Testing device (DC electrification)

An insulated probe or test lamp which will show if the conductor rail is live when connected between the conductor rail and the traction return rail.

Voltage testing device (AC electrification)

A device for use on those parts of the overhead line equipment normally live at 25kV, operated from ground level, used to verify that the overhead line equipment under test has been switched off.

GN02 These definitions are drawn from NR/L2/ELP/29987 for AC systems and from NR/WI/ELP/3091 for DC systems. The definitions given here are a subset of those in the source documents, and those not provided are omitted on the grounds that their provision is not required in a standard related to interface documentation.

References

The Catalogue of Railway Group Standards and the Railway Group Standards CD-ROM give the current issue number and status of documents published by RSSB. This information is also available from www.rgsonline.co.uk.

Documents referenced in the text

RGSC 01	The Railway Group Standards Code
Railway Group Standards	
GL/RT1252	Production and Management of Electrification Isolation Documents
Other References	
NR/L2/ELP/29987	Working on or about 25kV AC Electrified Lines
NR/WI/ELP/3091	DC Electrified Lines Working Instructions