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Issue	1
Date	December 2006

Specification

Competence & Training in DC Conductor Rail Engineering

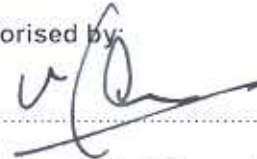
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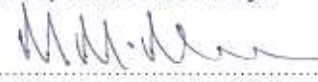
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Summary

This specification defines the requirements for the training and assessment of persons undertaking DC Conductor Rail maintenance work on Network Rail controlled infrastructure. The specification complements the requirements of company standard NR/SP/CTM/001 Competence Management.

Implementation

The provisions of this specification must be implemented from 2nd December 2006 for all DC Conductor Rail maintenance work that may affect the operational safety of Network Rail controlled infrastructure or the personal safety of people who isolate the DC Conductor Rail.

Compliance

This Network Rail Specification is mandatory and must be complied with as follows:

- The requirements for DC Conductor Rail Induction training shall take effect from 30th June 2007.
- Assessment of personnel against the requirements set out in Appendix B shall commence by 31st March 2007, shall be complete for existing people, by 31st March 2009 and shall be maintained from that date forward.

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1 Purpose

This specification sets out the minimum requirements for the assessment of personnel who undertake DC Conductor Rail maintenance and/or isolation work on Network Rail controlled infrastructure. It defines processes that shall be implemented and the standards that shall be achieved to ensure that personnel who undertake DC Conductor Rail maintenance and/or isolation work are competent to perform the work.

2 Scope

The specification applies to all employers and people who undertake DC Conductor Rail maintenance and/or isolation work on Network Rail controlled infrastructure. This standard covers the following types of DC Conductor Rail Systems:

- Aluminium Composite Rail
- Steel
- 4th Rail
- 'Standard Current' System Design
- 'High Current' System Design

3 Reference Documentation

NR/CS/CTM/001	Competence Management.
NR/SP/CTM/005	Quality Assurance in Training Delivery.
NR/SP/OHS/018	Safety requirements for track medical & alcohol & drugs screening & certification.

4 Definitions.

Access to

Relates to those persons who have access to Electrical Power Supply Equipment which is normally secured in buildings, rooms, equipment cases and enclosures, etc., to prevent danger to persons not trained in the avoidance of danger from such equipment.

Assessor.

Assessor is a person approved to undertake assessments of people against the requirements of specific Competence Standards.

Assessment.

Assessment is gathering and judgement of evidence to 'prove' or 'determine' a person's Competence as required by a Competence Standard.

Authority to work.

Authority to Work is a document that details the work activities that a person is authorised to complete. It includes the details of a person's competence and details of any restrictions that may apply to the way the person works e.g. requirement for supervision.

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Competence.

The ability to undertake responsibilities and to perform activities to a recognised standard on a regular basis. A combination of practical thinking skills, experience and knowledge, and may include a willingness to undertake work activities in accordance with agreed standards, rules and procedures.

In the context of this specification it also includes the consistent achievement of an identified standard of performance under defined normal, abnormal, and emergency situations; the ability to undertake work to ensure the safety of any person who might be affected by the work; and an appropriate level fitness.

Certificate.

Certificate confirms that specific competence has been demonstrated by an individual against the requirements of a Competence Standard. The certificate forms the basis for the competence to be added to the Authority to work.

Competence Management System (CMS).

Competence Management System is a suitably resourced, logical and integrated cycle of activities within an organisation used to assure competence of those who may, through lack of competence, have a impact on the:

- a) Safe operation and maintenance of Network Rail controlled infrastructure.
- b) Occupational health and safety of workers on or about the Network Rail or.
- c) Safety of other persons affected by their activities.
- d) Performance of Network Rail's business.

Competence Profile.

Competence Profile is a description of the competences that apply to a specific job role or post. The Competence Profile is used to determine the training and assessment requirements for the person occupying the post.

Competence Standard.

Competence Standard is a statement of:

- What a person must be able to do and how well, in order to achieve the intended outcome of work.
- The range of circumstances in which the ability would have to be demonstrated.
- The knowledge required to complete the work.
- The types of evidence needed to ensure that performance is consistent and can be sustained.
- How the above would be assessed.

Electrical Control Operator (ECO)

The person working in an Electrical Control Room, having control of the power supply to the electric traction system and all operations of related electrical equipment thereon.

Electrical Power Supply Equipment

Equipment, over 1,000V A.C. and over 600V D.C., forming part of the traction and power supply systems owned or leased by Network Rail.

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Employee/Person.

Employee/Person means a person in scope whose Competence is assessed by an Assessor.

Isolate

The process of disconnection and separation.

Isolated

Electrical equipment is isolated when it is disconnected and separated from all sources of electricity supply in a secure way.

Isolation

The action of causing an electrical section of specified equipment to be isolated.

Mentoring period.

Mentoring period is a period of time between the satisfactory completion of training where the employee will undertake the work under supervision of a mentor. This period is used to enable the employee to practice the competence and gather evidence ready for assessment.

Person in Scope

Anyone whose current, or future role will involve completing tasks associated with DC Conductor Rail maintenance, inspection, renewal or testing.

Persons New to DC Conductor Rail maintenance

Those persons who have not previously undertaken work involving DC Conductor Rail maintenance, inspection, renewal or testing tasks. It includes persons that may already be working in, or have worked in, the rail industry before, but in another role, not related DC Conductor Rail. New to DC Conductor Rail maintenance is not related to grade but to previous experience as described above.

Safety Critical Work

Work activities carried out in the railway industry that may affect the health and safety of persons on the transport system and that may have a real time impact on the operational railway.

Safety Related Work

Work activities carried out in the railway industry that may affect the health and safety of persons on the transport system but that do not have a real time impact on the operational railway.

Trainer.

A person approved by Network Rail to deliver specific training courses.

Verification

Verification is a process by which the quality of assessment decisions and the supporting process are independently assured.

Verifier

Verifier is a person who is competent and authorised to review the assessment process and assure the completed assessment decisions against specific competence standards.

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5 Requirements.

5.1 Deployment.

Employers shall not deploy any Person New to DC Conductor Rail maintenance on any tasks associated with DC Conductor Rail maintenance that may have a direct impact on the integrity of the DC Conductor Rail, until that person has attended and successfully completed the Network Rail DC Conductor Rail Induction Course.

Additionally people who are not new to DC Conductor Rail maintenance shall only be deployed on tasks associated with DC Conductor Rail maintenance **and/or isolation** work provided the person has attended and successfully completed appropriate training or has been assessed as competent to complete the work. Where a person has been trained they may be undertake the work but must be subjected to an appropriate level of supervision.

5.2 Work on or near the line.

Where a person is required to work on or near the line they shall be hold the relevant track safety competence(s).

In addition, persons shall be able to demonstrate medical fitness and be screened for alcohol and drugs in accordance with Network Rail Specification [NR/SP/OHS/018](#): Safety requirements for track safety medical & alcohol screening and certification.

5.3 Training.

Subject to the minimum requirements in 5.1 & 5.2 employers shall have systems in place to identify specific training needs for each Person in Scope. A training framework and specific training modules have been developed to address the common training needs of Persons in Scope. Details of this framework together with normal training progression are contained in Appendix A of this specification. Employers shall use this information to determine what training is appropriate for each Person in Scope.

The following steps shall be used and documented to identify and satisfy specific training needs:

1. Identify deployment requirements for the person concerned.
 - o Take account of specific types of equipment that the person will be required to work on and the type of activities the person will be required to undertake.
2. Establish the current competence of the person with relation to deployment requirements.
3. Establish what development is required and therefore which training modules are appropriate to match the deployment needs.
4. Agree development plan with the person and order in which the training should take place.
5. Arrange training.
6. Person completes relevant training.

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5.4 Mentoring.

Following the successful completion of training, each person shall undertake a period of workplace experience. The detailed mentoring requirements shall be provided in the requirements for each training course. The person's employer shall appoint a mentor who shall be responsible for supporting the workplace experience. Employers shall ensure that appropriate supervision is maintained during the period of mentoring.

Each employer shall provide a log book to record what work the person has completed during the workplace experience.

5.5 Assessment.

Following successful completion of the relevant training and mentoring the person shall be assessed against the requirements of the relevant Competence Standard contained in appendix B of this specification.

5.6 Delivery of training.

Persons delivering the training courses listed in appendix A shall be approved by Network Rail in accordance with the requirements of NR/SP/CTM/005 – Quality Assurance in Training Delivery.

Trainers shall only use the Network Rail approved training plans and assessments to deliver the training event.

5.7 Completion of assessment.

Where competences are recorded on the NCCA database Assessors shall be approved by Network Rail or its agents. For all other competences Assessors shall be approved in accordance with the employing organisation's competence management system. In both cases Assessors shall be approved prior to undertaking assessments against the competence standards detailed in this specification. Assessors shall plan and complete assessments.

Employers shall have in place verification procedures to ensure that at least 10% of completed assessments are verified.

5.8 Maintaining competence.

Employers shall have systems in place to assure the continued Competence of persons undertaking DC Conductor Rail maintenance and/or isolation work. These systems shall consist as a minimum of:

- a. The use of a log book to record work experience.
- b. The implementation of a review or re-assessment regime as defined in section 7.2

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6 Application.

6.1 Competence standards.

Based on a functional analysis Competence Standards have been developed that are suitable to control the risks associated with competent performance of personnel who are undertaking DC Conductor Rail maintenance and/or isolation work on the Network Rail controlled infrastructure. These Competence Standards are contained in the appendix B of this specification.

6.2 Competence profiles.

The Competence Standards are applicable to the job roles associated with teams undertaking maintenance activities or working with the electrical power supply.

Specific competence profiles shall be developed for each role and shall take account of equipment specific needs in a particular geographic location and other non DC Conductor Rail maintenance competence requirements.

Competence Standards should be selected on the basis of the person's job role and responsibility. A set of profiles (See appendix B) DC Conductor Rail maintenance competence requirements have been developed to aid this process.

6.3 Training needs.

A training framework and specific training modules applicable to the work activities associated with DC Conductor Rail maintenance and isolation have been developed and brief details of each module are contained in appendix A of this specification. The training framework and specific training modules are directly linked to the competence standards in appendix B.

Persons in Scope who are New to DC Conductor Rail maintenance shall as a minimum complete DC Conductor Rail Induction training regardless of what job role the person is undertaking.

6.4 Equipment Specific Endorsements

Where a person has been assessed as competent for one equipment type in a group of similar types and is required to demonstrate competence on other types certificate endorsements shall be added in the following way:

- a. Assessed as competent against "DCCR 1: Undertake Corrective Maintenance of the DC Conductor Rail" on Fish Plates. The certificate issued will show competence to:
 - Undertake Corrective Maintenance of The DC Conductor Rail inc:
 - o Fish Plates
- b. The person attends a DC Conductor Rail Maintenance course for a different type of DC Conductor Rail and successfully completes end of training assessments. A new certificate shall be issued showing competence to:
 - Undertake Preventive Maintenance of OLE Assets on:
 - o Fish Plates
 - o Conductor Rail

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7. Assessment Strategy.

The strategy to be applied to assessment takes account of a number of factors:

- Whether or not the person is new to the job role.
- What training and experience a person has had.
- What different types of equipment the person is required to work on.
- The practicality of gathering observed evidence.
- The risks from incompetent performance.

7.1 Initial Assessment

The following approach shall be used:

Case 1

Where the work is new to the person's area of responsibility they shall:

- Attend the relevant training and complete end of training assessments.
- Complete a period of work experience, under supervision, against objectives set at the end of the training and record the details in their Logbook. During the mentoring period the Mentor shall ensure that both his/her own safety and the safety of the person is maintained at all times in accordance with the Rule Book.
- Be assessed against the requirements laid down in the relevant Competence Standard.
 - If the employee is competent, the person completing the assessment shall issue a certificate of competence (See equipment specific endorsements).
 - If the employee is not yet competent.
 - The line manager shall agree and implement a development action plan.
 - The employee may continue workplace experience under supervision.
 - On completion of development action plan the employee shall be re-assessed for the specific competence.

Case 2

Where the employee has been previously trained and been completing the work for more than 1 year they shall be assessed for the specific competence using the following as the primary source of evidence:

- Detailed questioning/standard knowledge tests.
- Performance report from the line manager to confirm satisfactory and safe performance across the range of work detailed in the Competence Standard.
- If the employee is competent, the person completing the assessment shall issue certificate of competence.
- If the employee is not yet competent they shall be dealt with as described in Case 1.

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7.2 Maintaining Competence.

Employers shall have systems in place to assure the continued Competence of persons undertaking DC Conductor Rail engineering and/or isolation work. These systems shall consist as a minimum of:

- a. The use of a log book to record work experience which shall be reviewed by a responsible manager to confirm the person has practised to competence at the frequency defined in Appendix B.
- b. The implementation of a re-assessment regime that confirms, at least every 3 years, that:
 - the work completed by the person meets the performance requirements detailed in the relevant competence standard.
 - the person has the knowledge defined in the relevant competence standard.
 - there have been no incidents accidents or near misses as a result of the person completing the work.

Specific arrangements for Isolation competence are contained in Appendix C.

Where continued Competence cannot be confirmed through the review/re-assessment, arrangements shall be made for the competence to be withdrawn. The responsible manager shall develop a plan to restore the person's competence which may include retraining and / or further mentoring and re-assessment.

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Appendix A – DC Conductor Rail Training Framework

Where a person requires training to develop their competence they shall attend and successfully complete the Network Rail approved DC Conductor Rail training courses. This appendix contains a brief overview of the modules that form the DC Conductor Rail Training Framework.

1. Technical Courses

DC Conductor Rail Induction

This module is designed to train persons who are new to DC Conductor rail and whose work may involve the basic maintenance of the DC Conductor Rail, equipment or other duties that may affect the operation of DC Conductor Rail Infrastructure. The aim of the module is to provide the basic underpinning knowledge of the DC Conductor Rail System, its Components and working methods associated with maintenance of DC Conductor Rail Assets.

DC Conductor Rail Maintenance

This module is designed to train people whose work involves the 'heavy' maintenance of the DC Conductor rail traction systems. The person is most likely to be in a team member role who needs to develop their competence in DCCR 1 Undertake Corrective Maintenance of the DC Conductor Rail. The aim of the module is to develop the delegate's understanding of:

- DC Conductor Rail (inc 3rd & 4th Rail) – installation, repair and replacement
- Ramps & Ramp Ends
- Traction Cables
- Rail Drilling
- Welding
- General Safety

DC Conductor Rail Component Maintenance

This module is designed to train persons whose work involves the maintenance of the DC Conductor rail associated components. The person is most likely to be in a team member role who needs to develop their competence in DCCR 2 Undertake Corrective Maintenance of the DC Conductor Rail's Associated Components. The aim of the module is to develop the delegate's understanding of:

- Anchors
- Joint Bonds
- Insulators
- Guard Boarding & Shrouding
- General Safety

Traction Cables & Bonding Systems Maintenance

This module is designed to train persons whose work involves the maintenance of traction cables and bonding systems equipment. The person is most likely to be in a team member role who needs to develop their competence in DCCR 3 Undertake Corrective Maintenance of Traction Cables & Bonding. The aim of the module is to develop the delegate's understanding of:

- Track Isolation Devices
- Cable Jointing
- Cable Installation & Protection
- Negative Bonding
- General Safety

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Inspection of the DC Conductor Rail Infrastructure

This module is designed to train persons whose work involves the inspection of the DC Conductor Rail Infrastructure and its systems and equipment. The person is most likely to be in a Team Leader role who needs to develop their competence in DCCR 4 Inspect the DC Conductor Rail Infrastructure. The aim of the module is to develop the delegate's understanding of:

- Inspection of the DC Conductor Rail Infrastructure
- General Safety

Inspection of the Traction Cables and Bonding Systems

This module is designed to train persons whose work involves the inspection of the Traction Cables and Bonding Systems and equipment. The person is most likely to be in a Team Leader role who needs to develop their competence in DCCR 5 Inspect Traction Cables and Bonding Systems. The aim of the module is to develop the delegate's understanding of:

- Inspection of Traction Cables and Bonding Systems
- General Safety

Supervision of DC Conductor Rail Work & Assets

This module is designed to train persons whose work involves the Supervision of work, people and assets on the DC Conductor Rail Infrastructure. The person is most likely to be in a Team Leader role who needs to develop their competence in DCCR 6 Ensure Effective Progression of DC Conductor Rail maintenance or Renewal Activities. The aim of the module is to develop the delegate's understanding of:

- Managing the Manpower, Materials & Equipment
- Safety and Suitability of Tools
- Restoration of Equipment
- General Safety

Maintenance of Trolley Wire Systems

This module is designed to train persons whose work involves the maintenance of Trolley Wire systems and equipment. The person is most likely to be in a Team Leader role who needs to develop their competence in DCCR 7 Undertake Corrective Maintenance of Trolley Wire Systems

2. Isolation Training

Level B: Isolating the Conductor Rail - Switching

This module is designed to train persons whose work requires them to manually operate local track isolating switches on the DC Conductor Rail Infrastructure. The person is most likely to be in a team member role and whose duties require them to manually switch local power supplies

Level B: Isolating the Conductor Rail - Testing and Strapping

This module is designed to train persons whose work involves testing the DC Conductor Rail for electrical voltage and application of DC Conductor Rail short circuiting straps. The person is most likely to be in a team member role and whose duties require them to provide electrical protection for DC Conductor Rail isolation.

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Level B: DC Electrified Lines - Temporary Isolations

This module is designed to train persons whose work involves the application of temporary DC Conductor Rail isolations in response to incidents or failures. The person is most likely to be in a team member role and whose duties require them to isolate the electrical power supply for short durations to ensure that rectification work to damaged or failed equipment can be completed

Level A: DC Electrified Lines - Procedure A: (PICOP/ES)

This module is designed to train persons whose work involves the setting up a safe system of work, completion of documentation for and giving authorisation to persons with Level B competence to operate manual switches and isolate and earth equipment associated with the DC Conductor Rail. The person is most likely to be in an ES or PICOP role, whose work involves them providing electrical protection and who currently holds Level B certification

Level A: DC Electrified Lines - Procedure B: (Authorised/Nominated Persons)

This module is designed to train persons whose work involves the setting up a safe system of work, completion of documentation for and giving authorisation to persons with Level A or Level B competence to operate manual switches and isolate and earth equipment associated with the DC Conductor Rail. The person is most likely to be in a Level A (Nominated Person or Authorised Person) role, whose work involves them providing electrical protection and who currently holds Level B certification

Level A: DC Electrified Lines – Machine Switch Out

This module is designed to train persons whose work involves setting up a safe system of work for and giving authorisation to persons to proceed with the application of machine switch outs to enable machine mounted short circuiting devices to be deployed safely. The person is most likely to be in a PICOP role, whose work involves them providing electrical protection and who currently holds Level B certification

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Appendix B - Competence Standards

This appendix contains the detailed Competence Standards that shall be used to assess the competence of personnel who are responsible for DC Conductor Rail maintenance and isolation work.

1. Competence Profiles.

The following profiles have been included to guide employers as to the likely application of the competence framework to various generic job roles.

Ref No	Competence Standard	Team Member	Team Leader
DCCR 1:	Undertake Corrective Maintenance of the DC Conductor Rail	Core	Core
DCCR 2:	Undertake Corrective Maintenance of the DC Conductor Rail's Associated Components	Core	Core
DCCR 3:	Undertake Corrective Maintenance of the Traction Cables & Bonding	Core	Core
DCCR 4:	Inspect the DC Conductor Rail Infrastructure	Core	Core
DCCR 5:	Inspect Traction Cables and Bonding Systems	Optional	Core
DCCR 6:	Ensure the Effective Progression of DC Conductor Rail maintenance or Renewal Activities	Optional	Core
DCCR 7:	Corrective Maintenance of the DC Trolley Wire Systems		Optional

In addition to the above those persons required to work on or have access to live DC Conductor Rail must have sufficient competence to carry out their work without risk of danger to themselves or other persons. The Competence shall be demonstrated against the standards detailed below for the following roles

Level B (Competent Person)

Competent Persons are required to hold the units as follows:

- DCCR 8: Manually Switch the Electrical Supply to DC Conductor Rail Equipment to Meet Defined Requirements
- DCCR 9: Isolate Electrical Supply to DC Conductor Rail Equipment to Meet Defined Isolation Requirements
- DCCR 10: Contribute to Minimising Risks When Working On or Near Live DC Conductor Rail Equipment or Electrical Power Supply Equipment.

Sentinel Appropriate codes are:

- Level B – Strapping (inc testing) LB 3rd R St-i
- Level B - Switching LB 3rd R Sw-i
- Level B – Temporary Isolation LB 3rd R T-i

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Level A (Authorised/Nominated Person)

Nominated*/Authorised Persons are required to hold all units in Level B in addition to completing the units as follows: * Nominated Person refers to Merseyrail.

DCCR 11: Manage the Isolation and Earthing / Short Circuiting of Equipment.

Sentinel Appropriate codes are:

- Level A – Procedure A LA 3rd R PA-i
- Level A – Procedure B LA 3rd R PB-i
- Level A – Machine Switch Out LA 3rd R MSO-i

2. Evidence Requirements.

Sufficient evidence must be collected to enable competence to be assessed against all the performance statements and knowledge and understanding requirements for each element. Evidence must be sufficient to ensure that the employee is capable of consistent competent performance.

2.1 Performance Evidence.

The standards of competence in the appendices specify what forms and the quantity of performance evidence which shall be presented for each element.

There are two types of performance evidence:

- Evidence of the way the employee carried out activities – evidence of the process involved in demonstrating competence. This takes the form of observation, authenticated log book entries, or performance reports.
- Products of the employee's work – items that the employee produces or works on or documents produced as part of the activity. The evidence may be in the form of the product itself, or may be a records or photographs generated as part of the work.

2.2 Knowledge Evidence.

The knowledge evidence section of the element specifies the knowledge and understanding necessary for competent performance.

2.3 Knowledge requirements that are common to all Competence Standards.

Employees must have knowledge and understanding of:

Health and safety legislation, regulations and safe working practices and procedures that must include:

- Relevant sections of the Health and Safety at Work Act.
- Safety Critical Work Regulations.
- Electricity at Work Regulations.
- COSHH.
- Transport and Works Act (Alcohol and drugs).
- Track access restrictions.
- Current rule book.
- Working at Height.
- Confined Spaces.

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2.4 Assessment decisions.

Initial assessment decisions shall only be made following the generation of evidence from the person's normal workplace.

Assessment decisions of "competent" shall only be made when:

- All the required performance and knowledge evidence, as defined in the competence standard, has been provided.
- The evidence has been confirmed as accurate, current and attributable to the person concerned.
- Equipment endorsements may be added to a competence certificates following successful completion of training.

3. Monitoring Process.

The tables below provides guidance on how often a competence should be practiced to ensure the competence is maintained.

Competence Standard		Minimum Logbook entries in 12 months
DCCR 1	Undertake Corrective Maintenance of the DC Conductor Rail	4
DCCR 2	Undertake Corrective Maintenance of the DC Conductor Rail's Associated Components	4
DCCR 3	Undertake Corrective Maintenance of Traction Cable & Bonding	4
DCCR 4	Inspect the DC Conductor Rail Infrastructure	4
DCCR 5	Inspect Traction Cables and Bonding Systems	4
DCCR 6	Ensure Effective Progression of DC Conductor Rail maintenance or Renewal Activities	4
DCCR 7	Undertake Corrective Maintenance of Trolley Wire Systems	4
DCCR 8	Manually Switch the Electrical Supply to DC Conductor Rail Equipment to Meet Defined Requirement	4
DCCR 9	Isolate Electrical Supply to DC Conductor Rail Equipment to Meet Defined Isolation Requirements	4
DCCR 10	Contribute to Minimising Risks when Working on or Near Live DC Conductor Rail Equipment or Electrical Power Supply Equipment	4
DCCR 11	Manage the Isolation and Earthing / Short Circuiting of Equipment	4

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DCCR 1: Undertake Corrective Maintenance of the DC Conductor Rail

1. Purpose

The purpose of this competence standard is to define the competence requirements for persons required to undertake corrective maintenance of the DC Conductor Rail.

2. Scope

This competence standard applies in all circumstances where any person is required to maintain, the DC Conductor Rail on Network Rail controlled infrastructure.

The level and extent of responsibility will include their own safety and that of others who might be affected by their work. The employee will be expected to refer to others for authorisation when required, will be responsible for the implementation of the instructions and will work within set procedures and specifications. The employee is responsible for the quality of their completed work.

This competence standard shall be used to assess the competence of people maintaining the DC Conductor Rail

3. Competence Standard

This Competence Standard comprises one element:

Element 1 Undertake routine Corrective maintenance of the DC Conductor Rail

This covers the safe completion of planned maintenance in accordance with instructions and the restoration of it to operational condition. To prove competence in this unit, the employee must demonstrate their ability to complete maintenance in accordance with instructions, complete the appropriate testing and ensure the restoration of the DC Conductor rail. The employee will have to show they can follow recording, reporting and escalation procedures.

4. Assessment

4.1 Initial Assessment

Where the activity is new to the employee's area of responsibility evidence shall be used from satisfactory completion of training and mentoring and shall be gathered of the employee working on DC Conductor Rail.

Where the employee has been previously trained and has been completing the work for more than one year, performance evidence requirements defined in the element do not apply. The primary source of the evidence will be from detailed questioning supported by performance reports from the employee's Supervisor.

4.2 Re-Assessment

Re-assessment shall be completed at least every 3 years in accordance with the requirements set out in 7.2.

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5. Knowledge Evidence this is common to the whole unit

You must have knowledge and understanding of:

1. Engineering specifications associated with the DC Conductor Rail.
2. How the maintenance adjustment, faulting, repair and testing activity may affect the safe operation of the railway.
3. What procedures need to be followed to ensure operational and personal safety is maintained during the work.
4. How to avoid personal injury during the work.
5. How the systems are designed to function under normal operating conditions.
6. What each of the component parts contributes to the overall operation of the system.
7. What terminology and methods are used to identify equipment and describe operational status of the system.
8. What tools are required to complete the work and what equipment calibration is required.
9. What maintenance authorisation procedures are and limits of your responsibility and authority.
10. What equipment operating and care and control procedures are applicable to DC Conductor Rail Maintenance.
11. What procedures apply to taking the equipment out of operational service and what procedures apply to handing back the equipment to operational service
12. Maintenance reporting documentation and control procedures
13. Reporting lines and procedures

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DCCR 1: Undertake Corrective Maintenance of the DC Conductor Rail	
Element 1: Undertake Corrective Maintenance of the DC Conductor Rail and Restore to Operational Specification	
Performance statements <i>You must be able to:</i> - Work safely at all times, complying with health and safety and other relevant regulations and guidelines. - Follow the relevant maintenance specifications, schedules and instructions to carry out the required work. - Carry out the maintenance/restoration activities within the limits of your personal authority. - Carry out the maintenance/restoration activities in the specified sequence and in an agreed time scale. - Confirm that the maintained/restored equipment meets the required operating specification. - Report any instances where the maintenance activities cannot be fully met or where there are identified defects outside the planned schedule. - Complete relevant maintenance records accurately and pass them on to the appropriate person. - Dispose of waste materials in accordance with safe working practices and approved procedures. - Produce accurate and complete records of all work carried out	Knowledge statements <i>You must have knowledge and understanding of:</i> - What types of defect can occur in DC Conductor Rail components and how to check for these defects. - What maintenance schedules and related specifications apply to the DC Conductor Rail. - What maintenance methods and procedures apply to the DC Conductor Rail - What tests/checks must be undertaken for a complete maintenance activity. - How to recognise when the work required to restore performance to specification exceeds the limits of the maintenance activity. - What the procedures are for dealing with an inability to complete maintenance activity within agreed timescales. - Component restoration methods, techniques and procedures associated with the DC Conductor Rail
Scope of Competence - Corrective maintenance procedures are to be completed on the DC Conductor Rail and fitments including: - Conductor Rail - Ramps - Fishplates - Traction Cables - Activities are to: - Check security of Rail, Ramps, and Fishplates - Create Insertions - Position Gauge - Weld joints (geographic dependant) - Adjust Rail height & position. - Remove Foreign Body encroachment - Restoration of equipment will be as a result of: - Mechanical integrity of all items resulting from corrosion, erosion and wear - Degraded insulation - Restoration is to component parts to maintain operating parameters of the equipment - Quality standards to be achieved are as defined in the maintenance specifications.	Performance Evidence Requirements Performance evidence must be collected through differing types of workplace evidence, of the employee completing all relevant maintenance procedures in respect of performance statements: a, b, c, d, and f for all applicable items in scope statement 1. The remaining performance statements may be assessed by using a range of assessment methods including witness testimony, documented questioning or evidence from training.

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DCCR 2: Undertake Corrective Maintenance of the DC Conductor Rail's Associated Components

1. Purpose

The purpose of this competence standard is to define the competence requirements for persons required to undertake corrective maintenance of the DC Conductor Rail's Associated Components.

2. Scope

This competence standard applies in all circumstances where any person is required to maintain, the DC Conductor Rail's Associated Components on Network Rail controlled infrastructure.

The level and extent of responsibility will include their own safety and that of others who might be affected by their work. The employee will be expected to refer to others for authorisation when required, will be responsible for the implementation of the instructions and will work within set procedures and specifications. The employee is responsible for the quality of their completed work.

3. Competence Standard

This Competence Standard comprises one element:

- | | |
|-----------|--|
| Element 1 | Undertake routine Corrective maintenance of the DC Conductor Rail's Associated Components & Restore to Operational Specification |
|-----------|--|

This covers the safe completion of planned maintenance in accordance with instructions and the restoration of it to operational condition

To prove competence in this unit, the employee must demonstrate their ability to complete maintenance in accordance with instructions, complete the appropriate testing and ensure the restoration of the DC Conductor rail. The employee will have to show they can follow recording, reporting and escalation procedures.

4. Assessment

4.1 Initial Assessment

Where the activity is new to the employee's area of responsibility evidence shall be used from satisfactory completion of training and mentoring and shall be gathered of the employee working on DC Conductor Rail.

Where the employee has been previously trained and has been completing the work for more than one year, performance evidence requirements defined in the element do not apply. The primary source of the evidence will be from detailed questioning supported by performance reports from the employee's Supervisor.

4.2 Re-Assessment

Re-assessment shall be completed at least every 3 years in accordance with the requirements set out in 7.2.

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5. Knowledge Evidence this is common to the whole unit

You must have knowledge and understanding of:

1. Engineering specifications associated with the DC Conductor Rail's Associated Components .
2. How the maintenance adjustment, faulting, repair and testing activity may affect the safe operation of the railway.
3. What procedures need to be followed to ensure operational and personal safety is maintained during the work.
4. How to avoid personal injury during the work.
5. How the systems are designed to function under normal operating conditions.
6. What each of the component parts contributes to the overall operation of the system.
7. What terminology and methods are used to identify equipment and describe operational status of the system.
8. What tools are required to complete the work and what equipment calibration is required.
9. What maintenance authorisation procedures are and limits of your responsibility and authority.
10. What equipment operating and care and control procedures are applicable to DC Conductor Rail's Associated Component Maintenance.
11. What procedures apply to taking the equipment out of operational service and what procedures apply to handing back the equipment to operational service
12. Maintenance reporting documentation and control procedures
13. Reporting lines and procedures