



Australian Government

UETTD RRT30 Perform to a given schedule rail traction switching operations

Release: 1

UETTDRT30 Perform to a given schedule rail traction switching operations

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package.

Application

This unit involves the skills and knowledge required to perform to a given schedule rail traction switching operations in the electricity supply industry (ESI).

It includes operating circuit breaking and isolation devices associated with energy reticulation systems/networks and applying to rail systems in field situations. It also includes procedures for communicating with the switching control officer or electrical control officer, isolating electrical equipment and the line/network or worksite, proving the area is de-energised and earthed or rail-connected, issuing/accepting or holding of electrical permits and returning affected circuits to service.

The application of the skills and knowledge described in this unit may require a licence/registration to practice in the workplace.

Other conditions may apply under state and territory legislative and regulatory licensing requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

Common Unit Group

UEENEEE101A Apply Occupational Health and Safety regulations, codes and practices in the workplace

UEENEEE102A Fabricate, assemble and dismantle utilities industry components

UEENEEE104A Solve problems in d.c. circuits

UEENEEE105A Fix and secure electrotechnology equipment

UEENEEE107A Use drawings, diagrams, schedules, standards, codes and specifications

UEENEEG101A Solve problems in electromagnetic devices and related circuits

UEENEEG102A Solve problems in low voltage a.c. circuits

UETTDREL11 Apply sustainable energy and environmental procedures

UETTDREL12 Operate plant and equipment near live electrical conductors and apparatus

UETTDREL16 Working safely near live electrical apparatus

UETTDRI52 Install and maintain poles, structures and associated hardware

UETTDRT54 Install and maintain poles, structures and overhead conductors and cables

UETTDRT21 Install traction overhead wiring systems

UETTDRT22 Maintain traction overhead wiring systems

UETTDRT27 Install overhead traction components and equipment

UETTDRT28 Maintain overhead traction components and equipment

Competency Field

Rail Traction

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for rail traction switching operations to a given schedule

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Work schedules, construction plans, drawings, workplace procedures and material lists are received and confirmed
- 1.2** Job requirements and workplace procedures are identified and communicated with relevant personnel
- 1.3** Work health and safety (WHS)/occupational health and safety (OHS), environmental and workplace procedures for rail traction switching operations to a given schedule are obtained and confirmed for the purposes of the work to be performed
- 1.4** Work is prioritised and sequenced for completion within acceptable timeframes following consultation with relevant personnel and in accordance with workplace procedures
- 1.5** Hazards are identified, WHS/OHS risks assessed and control measures identified in accordance with workplace procedures
- 1.6** Relevant work permits are obtained to access rail corridor and perform work in accordance with job

requirements and/or workplace procedures

- 1.7** Plant, equipment, tools and personal protective equipment (PPE) required for work is identified, obtained and confirmed in working order
- 1.8** Liaison and communication issues with authorised personnel, authorities, clients and land owners are resolved to perform work, as required
- 1.9** Modifications to the scheduled which may be required after assessing the worksite is communicated to appropriate personnel for formal approval
- 1.10** Worksite is prepared to minimise risk, damage to property, assets and individuals in accordance with track protection officer and/or network control officer and workplace procedures
- 1.11** Personnel participating in work are fully briefed and responsibilities confirmed in accordance with workplace procedures
- 1.12** Traffic management plan is identified and implemented in accordance with workplace procedures

2 Carry out rail traction switching operations to a given schedule

- 2.1** WHS/OHS, sustainable energy and environmental principles and practices are monitored and followed to reduce incidents in accordance with workplace procedures
- 2.2** Requirements for lifting and/or climbing and/or working at heights and the use of power tools/equipment are followed in accordance with workplace procedures
- 2.3** Switching of rail traction operations are completed in agreed timeframes, to quality standards and with minimum waste in accordance with workplace procedures
- 2.4** Communications with switching control officer are established and maintained during isolation operation in accordance with workplace procedures
- 2.5** Electrical equipment, associated circuits, line/network or worksite is isolated and proven de-energised using appropriate testing devices and earthed or rail connected, where required, in accordance with requirements and workplace procedures

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| | 2.6 | Solutions used to solve problems are applied in accordance with workplace procedures |
| | 2.7 | Quality checks of work are undertaken in accordance with workplace procedures |
| 3 Complete rail traction switching operations to a given schedule | 3.1 | Completed work is checked against work schedule, construction plans and drawings for compliance and anomalies are reported in accordance with workplace procedures |
| | 3.2 | WHS/OHS and environmental incidents are reported in accordance with workplace procedures, as required |
| | 3.3 | Worksite is rehabilitated, cleaned up and made safe in accordance with workplace procedures |
| | 3.4 | Tools, equipment and surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with workplace procedures |
| | 3.5 | Relevant work permits are signed off, safety devices removed, and the system made ready to be re-energised and returned to service in accordance with workplace procedures |
| | 3.6 | Work completion records, reports, as installed modified drawings, documentation and information are finalised, processed and relevant personnel and authorities notified |

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UETTDRT30A Perform to a given schedule rail traction switching operations.

Links

UET Training Package Companion Volume Implementation Guide is found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=229bace1-b7bc-4653-9300-dffb13ecfad7>

Assessment Requirements for UETTDRT30 Perform to a given schedule rail traction switching operations

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including the use of risk control measures
- applying sustainable energy principles and practices
- checking all of the following:
 - approvals/clearances
 - electrical/access permits
- using at least one (1) of the following types of testing equipment for performing overhead traction switching:
 - voltage detectors
 - field intensity meter
 - polarity testers
 - phase rotation indicators
- performing rail traction switching operations to given schedule which includes switching at least one (1) of the following types of switches for overhead traction switching:
 - high voltage (HV)/low voltage (LV) circuit breakers
 - HV/LV switches
 - HV/LV isolators
 - HV/LV links
 - HV/LV bridges
 - HV/LV fuses
- using all of the following:
 - portable earthing/rail-connecting equipment
 - operating rods/sticks
- dealing with unplanned events on at least one (1) occasion.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- installation of overhead distribution conductors, including:
 - standards, codes, legislation, supply authority regulations and/or enterprise requirements applicable to installing conductors and associated equipment
 - requirements for the use of overhead line construction manuals, system diagrams/plans and drawings - material lists, conductor size, type and route length
 - constructions types and structures for distribution and sub-transmission lines
 - types, sizes and characterises of overhead conductors
 - resources for the stringing and maintenance of conductors - types of LV and HV overhead electrical conductor connections; causes and effects of poor electrical connections; reasons for and methods used to maintain standard phase sequencing; removing, repairing and replacing damaged conductors; and minimum clearances between overhead conductors and LV and HV structures
 - techniques for conductor installation - types and application of tools, equipment and hardware
 - methods of stringing, tensioning and termination of LV and HV conductors
- safe working practices and procedures for the installation of overhead distribution conductors, including:
 - limits of approach for personnel, vehicles, mobile plant and elevated work platforms (EWP)
 - requirements of persons prior to making bare hand contact with dead LV mains and apparatus
 - requirements of relevant electrical access permits necessary to allow work to be performed on LV and HV apparatus
 - safe working practices - requirements to enable safe working on conductive poles, procedure to attach an on-site earthing device to de-energised LV and HV overhead circuit
- installation of switchgear and associated equipment, including:
 - types and function of various switchgear - isolators, air-break switches, gas-filled switches, vacuum type, links, fuses, oil disconnectors, fuse switches, circuit breakers, operating characteristics, advantages and disadvantages of different types switchgear, installation procedures, earthing, requirements and techniques
 - types of equipment - transformers, reactors, regulators, capacitors, relays, surge arrestors, fault indicators and mobile generators
 - installation procedures for switchgear and equipment - standards, codes, legislation, supply authority regulations and/or enterprise requirements, assembly and erecting procedures, earthing requirements and techniques, and pole mounted locations
 - maintenance procedures for switchgear and equipment - diagnosing and rectifying faults according to electricity supply industry (ESI) standards and procedures,
 - testing and commissioning - ESI standards and procedures

- LV switching principles, including:
 - standards, codes, legislation, supply authority regulations and/or enterprise requirements applicable to switching of LV to a given schedule
 - requirements for the use of manuals, system diagrams/plans and drawings - types, characteristics and capabilities of electrical apparatus; use, characteristics and capabilities of specialised tools and testing equipment; and LV network interconnectors source of possible back-feed
 - LV switching techniques - identifying hazards, assessing and controlling risks associated with LV switching operations, electrical access permit(s), operational procedures and earthing procedures
 - personnel protective equipment (PPE) for LV switching.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated conditions involving realistic and authentic activities that replicate operational workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment (PPE) currently used in industry for performing to a given schedule rail traction switching operations
- applicable documentation, including workplace procedures, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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