



**Australian Government**

**Assessment Requirements for  
UETDRRT31 Maintain energised d.c.  
traction overhead wiring system**

**Release: 1**

# Assessment Requirements for UETDDRRT31 Maintain energised d.c. traction overhead wiring system

## 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
- maintaining, repairing or replacing components including at least two (2) of the following:
  - span
  - cross-span
  - headspan
  - section insulator
  - support equipment
  - tramway support network
- maintaining traction components including at least three (3) of the following:
  - catenary
  - dropper
  - contact/trolley
  - feeder/in-span feeder
  - drape/potential jumper
- performing at least two (2) of the following:
  - removal of trapped foreign objects
  - profiling
  - vertical adjustment of contact or trolley wire
- performing work from at least one (1) of the following:
  - insulated elevating work vehicles
  - insulated ladder
  - insulated work platforms
- using materials and equipment including at least two (2) of the following:
  - tensioning equipment

- insulated sticks
- ropes
- slings and chains
- geometry profiling equipment
- 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:

- basic rigging techniques encompassing:
  - standards, codes, legislation, supply authority regulations and/or enterprise requirements associated with rigging, including the operation of cranes, hoists and winches and relevant certification and licensing (if required)
  - requirements for the use of enterprise construction manuals, system diagrams/plans and drawings
  - safe use of rigging equipment, tools and associated equipment - types, techniques and application
  - site inspection procedures - identifying hazards, assessing and controlling risks, and appropriate sequence of loading and unloading
  - determining the mass and dimensions of load
  - selection and inspection procedures - rigging equipment, materials and tools (natural and synthetic fibre ropes and chains, fittings, winch and capstan); ratings of wire ropes and slings; removing, repairing and replacing of damage parts
  - techniques for assembling and erecting power winches and capstans
  - checking the integrity of support structure - visual inspection of load connections
  - techniques in moving, lifting, shifting, managing and placing loads - use of appropriate communication and signalling methods, codes of practice/compliance, enterprise and Commonwealth/state/territory legislative requirements, weather conditions, erection of safety nets and lines, methods of fixing and anchoring loads, and load stability
- installation of overhead distribution conductors encompassing:
  - 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
  - construction 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 low voltage (LV) and high voltage (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; 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 encompassing:
  - 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, procedures to attach an on-site earthing device to de-energised LV and HV overhead circuit
- safe working on energised LV equipment encompassing:
  - standards, codes, Commonwealth/state/territory/local government legislation, supply authority regulations and/or enterprise requirements
  - safety precautions specific to working on or near energised LV conductors - safe working practices and procedures; identification of hazards; assessment and control of WHS/OHS risks; types, selection, maintenance and use of personal protective equipment (PPE)
  - work on or near energised LV conductors - types and function of specialised tools, safe working practices when using specialised tools, methods of using specialised tools, safe procedures for work on panels and in cubicles on or near energised LV conductors, and release and rescue procedures for work on or near exposed energised LV conductors
- powerline safety practices encompassing:
  - protective apparatus and apparel for linework - responsibilities for the selection, use, maintenance and storage of protective apparatus and apparel and the types of protective apparatus and apparel used for the line worker
  - requirements for the use of ladders - carrying, erecting, collapsing and lowering different types of extension ladder against a standing pole; maintenance checks on different types of ladders; renewal of extension ropes and the safety issues relating to clearances from overhead conductors
  - requirements for climbing and working aloft - methods used to identify a pole is safe to climb; methods used to inspect a line worker's body belt; application of knots and hitches appropriate to the requirements of a line worker; height safety principles, including personal fall protection, prevention and related requirements; and the practical procedures of climbing an overhead structure and fitting a pole chair
  - traffic management - purpose of traffic management and a line worker's responsibilities in accordance with relevant statutory requirements and electricity supply industry (ESI) requirements, the procedure used to provide an effective traffic management scheme and the use of a two-way radio
  - control of small fires - identification, selection and operation of the appropriate extinguishing mediums for various types of fires, general fire prevention methods and the precautions for personal protection when fighting small fires
  - rescue victims from heights and confined spaces - planning and identifying procedures,

- establishing responses; developing techniques; involvement of external emergency services; and practical demonstration/rehearsals of rescuing a person from heights and from confined spaces and emergency procedures for the rescue of an electric shock victim, including cardiopulmonary resuscitation (CPR)
- requirements for aerial linework - planning, establishing and implementing relevant aviation authority clearances; determining system requirements; aircrew familiarisation with network operations and equipment; and requirements for effective communications operations for aerial work
- LV switching principles encompassing:
  - 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 permits, operational procedures and earthing procedures
  - PPE for LV switching
- safe working on energised d.c. traction equipment encompassing:
  - Commonwealth/state/territory/local government legislation, standards, codes, supply authority regulations and/or enterprise requirements
  - safety precautions specific to working on energised LV d.c. traction overhead conductors and cables - safe approach distances (SAD); safe working practices, instructions and procedures; WHS/OHS hazards and precautions; identification of WHS/OHS hazards; assessment and control of WHS/OHS risks; types, selection, maintenance, storage and use of PPE; dangers of working in confined spaces and at heights; notification to work systems, safe working policies, procedures and practices when using/operating specialised equipment and tools; and emergency response and rescue, including first aid
  - techniques in installation, maintenance, replacing and repairing of energised d.c. traction overhead conductors, cables and equipment - span, cross-span, head-span, section insulator, support equipment, tramway support network, catenary, dropper, contact/trolley, feeder/in-span feeder and drape/potential jumper
  - techniques in carrying out work on energised d.c. traction overhead conductors, cables and equipment - removing trapped foreign objects, profiling and vertical adjustment of contact or trolley wire
  - techniques in using plant, equipment and/or tools to carry out work on energised d.c. traction overhead conductors, cables and equipment - insulated elevating work vehicles; insulated ladder; insulated work platforms; tensioning equipment; and insulated sticks, ropes, slings and chains
- enterprise-specific policies and procedure instructions encompassing:
  - responsibilities and duty of care of employer and employee relationship
  - methods of obtaining the up-to-date information on enterprise policies and procedures
  - rules and regulations

- induction into workplace - location of work area and storage area, timetable, uniform, personal wellbeing, housekeeping rules, emergency procedures and evacuation procedures
- techniques when dealing with others - working in teams, customer relation, and complaint and issues procedures
- overview of enterprise professional development - fire-fighting procedures, fatigue management, and training and competency development - understanding and promotion
- enterprise-specific WHS/OHS instructions encompassing:
  - standards, codes, legislation, supply authority regulations and specific enterprise regulations pertaining to WHS/OHS policies and procedures
  - methods of obtaining the up-to-date information on enterprise WHS/OHS policies and procedures
  - specific enterprise PPE - type and application; where and when to be used; method of replacement; responsibility of maintenance, including cleaning, inspection and testing; and emergency response, rescue, evacuation and first aid procedures
  - personal wellbeing – hygiene, fatigue/stress management and drugs/alcohol
  - WHS/OHS training - induction training, specific hazard training, specific task or equipment training, emergency and evacuation training, and training as part of broader programs, such as equipment operation
  - WHS/OHS records - audits; inspection reports; workplace health and environmental monitoring records; training and instruction records; manufacturer and supplier information, such as material safety data sheets (MSDS); registers; maintenance reports; workers compensation and rehabilitation records; and first aid/medical records
- enterprise-specific technical drawings and documents encompassing:
  - types and application of enterprise-specific drawings and documents - electrical and electronic drawings, mechanical drawings, project charts, schedules, graphs, technical manuals and catalogues
  - instructions/worksheets - types and application of enterprise-specific symbols and diagrams
  - title box - description of parts and version control.

## **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, equipment and PPE currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

## **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>