



Australian Government

UETTD RTP32 Maintain energised transmission lines using high voltage live work bare hand method

Release: 1

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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 maintain energised transmission lines using high voltage (HV) live work Barehand method in the electricity supply industry (ESI).

It includes maintaining live work using Barehand method, verifying site conditions and potential hazards, conformation and calculation of physical loads and selection of appropriate and authorised work methods. It also includes preparing and cleaning specialist material and tools in accordance with authorised technical instructions, undertaking of work health and safety (WHS)/occupational health safety (OHS), safe working practices and rendering inoperative the automatic re-closing device including its restoration in accordance with the work plan and procedures for issuing/accepting live work authorities/permits and/or relevant work documents.

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 requirement which must be confirmed prior to commencing this unit.

Pre-requisite Unit

All competencies in one (1) of the identified Pathway Unit Group(s) must have been completed.

Pathway 1

Qualified and authorised Transmission Lineworker

Pathway 2

BSBLDR403 Lead team effectiveness

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

UETTD RIS54 Install and maintain poles, structures and overhead conductors and cables

UETTD RIS65 Contribute to coordinated HV live working

UETTD RTP26 Install transmission structures and associated hardware

UETTD RTP27 Maintain transmission structures and associated hardware

UETTD RTP29 Install and maintain transmission overhead conductors and cables

UETTD RTP30 Inspect transmission overhead structures and electrical apparatus

UETTD RTP31 Maintain energised transmission lines using high voltage live work stick method

UETTD RTP99 Test and verify transmission overhead installations

Competency Field

Transmission

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to maintain energised transmission lines using HV live work bare hand method

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 obtained and analysed
- 1.2** Job requirements and workplace procedures are identified and communicated with relevant personnel
- 1.3** Hazards are identified, WHS/OHS risks assessed and control measures prioritised, implemented and monitored in accordance with workplace procedures
- 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 Risk control measures are identified, prioritised and evaluated against the work schedule
- 1.6 Relevant work permits are obtained and signed in accordance with workplace procedures
- 1.7 Equipment, tools and personal protective equipment (PPE) required for work are identified, obtained and confirmed in working order
- 1.8 Relevant personnel at worksite are confirmed current in first aid, cardiopulmonary resuscitation (CPR) and other rescue procedures in accordance with job requirements and/or workplace procedures
- 1.9 Liaison and communication issues with authorised personnel, authorities, clients and land owners are resolved to perform work, as required
- 1.10 Worksite is prepared to minimise risk, damage to property, commerce and individuals in accordance with workplace procedures
- 1.11 Personnel participating in work are fully briefed and responsibilities confirmed in accordance with workplace procedures
- 1.12 Traffic management is planned and implemented in accordance with workplace procedures

2 Perform maintenance of transmission lines using HV live work bare hand method

- 2.1 WHS/OHS, sustainable energy and environmental principles and practices are monitored and actioned to reduce incidents of accidents in accordance with workplace procedures
- 2.2 First aid, CPR and other rescue procedures are performed in accordance with job requirements and/or workplace procedures
- 2.3 Requirements for lifting, climbing, working at heights, confined spaces and use of power tools/equipment are followed in accordance with workplace procedures
- 2.4 Auto-reclose devices and associated circuits are rendered inoperative and necessary work documentation

obtained in accordance with workplace procedures

- 2.5 Hazard warnings and safety signs are recognised and hazards and assessed WHS/OHS risks are reported to immediate authorised personnel for directions in accordance with workplace procedures
- 2.6 Remedial actions are taken to overcome shortfalls encountered in the work schedule in accordance with job requirements and workplace procedures
- 2.7 Maintenance of energised HV overhead electrical transmission apparatus is performed in accordance with work schedules, job requirements and workplace procedures
- 2.8 Energised HV overhead electrical transmission apparatus is maintained to ensure completion in agreed timeframes, to quality standards and with minimum waste in accordance with workplace procedures
- 2.9 Solutions to non-routine problems are identified and actioned using in accordance with workplace procedures
- 2.10 Quality checks of work are undertaken in accordance with industry standards and workplace procedures

3 Complete the maintenance of transmission lines using HV live work bare hand method

- 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 Accidents and/or injuries are reported and followed up in accordance with requirements/workplace procedures
- 3.3 Worksite is rehabilitated, cleaned up and confirmed safe in accordance with workplace procedures
- 3.4 Tools, equipment, surplus resources and materials are cleaned, checked and returned to storage in accordance with workplace procedures
- 3.5 Relevant work permits are signed off and client/customer advised in accordance with workplace procedures
- 3.6 Work records, reports and/or documentation are completed in accordance with workplace procedures

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 UETTD RTP32A Maintain energised transmission lines using high voltage live work Barehand method.

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 UETTD RTP32 Maintain energised transmission lines using high voltage live work bare hand method

Modification History

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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
- accessing work zone using at least one (1) of the following methods:
 - ladder access
 - elevated work platform (EWP) access
 - elevated work box (EWB) access
 - rope access
- performing at least five (5) of the following live work tasks:
 - replacing strain insulators
 - replacing suspension insulators
 - replacing/connecting bridge/bonding connections
 - replacing vibration dampers
 - repairing/replacing conductor spacers
 - repairing/replacing conductor joints
 - repairing conductors
- 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:

- Commonwealth/state/territory legislation, standards, codes, supply authority regulations and/or enterprise requirements associated with working on energised lines for voltages up to and including 500 kV utilising the live bare hand work method
- relationship and responsibilities of each team member, including:
 - role of the individual in the team

- contribution to joint outcomes
- goals/plans and objectives of the team
- work team communication
- effective teamwork
- safety precautions for working on energised lines, including:
 - live work minimum approach distances for persons and plant
 - calculation of forces supported by live working equipment
 - identification of WHS/OHS hazards, and assessing and controlling the risks
 - types, selection, maintenance, storage and uses of personnel protective equipment (PPE), including the faraday suit
 - types and functions, safe working policies, procedures and practices for use of specialised live work plant, equipment and tools
 - emergency response and rescue procedures
- electrical and electrostatic principles, including:
 - relationship of the resistance of a human body to different levels of current and voltage
 - relationship of a human body in an electric field
 - effects of electrostatic induction for live bare hand work
 - relationship of phase voltage and respective line voltages
 - effect of distance to voltage
 - potential of a conductive object within a field
- high voltage (HV) feeder auto-reclosing suppression, including:
 - function
 - application
 - live work access authority/permit systems
- live bare hand work techniques performed in accordance with enterprise requirements, including:
 - fitting and testing a faraday suit
 - erecting and using an insulated ladder
 - erecting and using a boom pole and insulator cradle
 - installing and/or replacing HV suspension insulators
 - installing and/or replacing HV strain insulators
 - installing and/or replacing suspension clamp units
 - installing and/or replacing fittings and hardware to conductors
 - installing and/or replacing vibration dampers
 - installing and/or replacing conductor spacers
 - installing and/or replacing preformed repair rods
 - installing and/or replacing HV cross-arms
 - connecting and/or disconnecting HV bypass bridges
- selection, care, use and maintenance of ropes for live work, including:
 - identification of ropes used for live bare hand work

- characteristics
- application
- restrictions
- precautions
- storage
- transport
- cleaning and caring
- labelling
- testing
- records
- techniques in splicing
- determining suitability of the rope for continued use
- selection care, use and maintenance of sticks for live work, including:
 - care of live work sticks
 - use and load limitations of live work sticks
 - cleaning live work sticks
 - restoring gloss surfaces of live work sticks
 - repairing small ruptures of live work sticks
 - repairing broken fittings of live work sticks
- checking integrity of insulators prior to work, including:
 - visual and audible assessment
 - check disc voltage difference
 - plot data
 - assess data
 - determine condition of insulator string
- rigging procedures for live bare hand work, including
 - identification of rigging points on structures
 - selection and positioning of rigging equipment on structures
 - selection of and operation of rope tackles
- safety observer principles and responsibilities, including:
 - areas of responsibility
 - supervisor skills
 - protocols and procedures
 - specific duties of a safety observer
 - techniques in observing others in the safe performance of their work
 - minimum approach distances for personnel and hand-held tools
 - special limits of approach.

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.

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