



**Australian Government**

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

**Release: 1**

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

## **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 stick method in the electricity supply industry (ESI).

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

The application of the skills and knowledge described in this unit may require a licence to operate specific pieces of equipment such as elevated work platforms.

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

Certificate III Transmission overhead powerline worker or a qualified transmission powerline worker.

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 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 Plan to maintain energised transmission lines using HV live work stick method**

### PERFORMANCE CRITERIA

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

- |            |                                                                                                                                                    |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.1</b> | Work schedules, construction plans, drawings, workplace procedures and material lists are obtained and analysed                                    |
| <b>1.2</b> | Job requirements and workplace procedures are identified and communicated with relevant personnel                                                  |
| <b>1.3</b> | Hazards are identified, WHS/OHS risks assessed and control measures prioritised, implemented and monitored in accordance with workplace procedures |
| <b>1.4</b> | 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 Carry out the maintenance of energised transmission lines using HV live work stick 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 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 established procedures

- 2.5 Auto-reclose devices and associated circuits are rendered inoperative and necessary work documentation obtained 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 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 energised transmission lines using HV live work stick 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 WHS/OHS and environmental incidents are reported in accordance with workplace procedures, as required
- 3.3 Worksite is cleaned and confirmed safe in accordance with workplace procedures
- 3.4 Tools, equipment, 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 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 RTP31A Maintain energised transmission lines using high voltage live work stick 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 RTP31 Maintain energised transmission lines using high voltage live work stick method**

## **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
- accessing work zone using at least two (2) of the following methods:
  - ladder access
  - elevated work platform (EWP) access
  - elevated work box (EWB) access
  - structure access
- completing all the following:
  - electrical integrity of insulators
  - replacing strain insulators
  - replacing suspension insulators
- performing at least three (3) of the following live work tasks:
  - replacing/installing vibration dampers
  - repairing/replacing conductor spacers
  - repairing/replacing conductor fittings and hardware
  - applying pre-formed helical fittings
  - installing/removing vibration meters
  - replacing cross-arms
  - replacing poles
- 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 from 66 kV up to 500 kV utilising live work stick method

- relationship and responsibilities of each team member encompassing:
  - roles of the individual in the team
  - contribution to joint outcomes
  - goals/plans and objectives of the team
  - team communication
  - effective teamwork
- safety precautions for working on energised lines encompassing:
  - 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 risks
  - types, selection, maintenance, storage and uses of personnel protective equipment (PPE) required for live stick work
  - 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 encompassing:
  - relationship of the resistance of a human body to different levels of current and voltage
  - relationship of a human body to an electric field
  - effects of electrostatic induction for live stick work
  - relationship of phase voltage and respective line voltages
  - effect of distance
  - potential of an object within the field and the effect of distances to the potential
- high voltage (HV) feeder auto-reclosing suppression encompassing:
  - function
  - application
  - live work access authority/permit systems
- selection, care, use and maintenance of sticks for live work encompassing:
  - 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
- selection, care, use and maintenance of ropes for live work encompassing:
  - identification of ropes used for live stick work
  - characteristics
  - types
  - application

- restrictions
- storage
- transport
- cleaning
- labelling
- testing
- recording
- techniques in splicing
- determining suitability of the rope for continued use
- live stick work techniques performed in accordance with enterprise requirements encompassing:
  - connecting and/or disconnecting HV bypass bridges
  - erecting and using boom pole and insulator cradle
  - erecting and/or replacing structures and poles
  - installing and/or replacing HV cross-arms
  - installing and/or replacing HV suspension insulators
  - installing and/or replacing HV strain insulators
  - installing and/or replacing suspension clamp unit
  - installing and/or replacing fittings and hardware to conductors
  - installing and/or replacing vibration dampers
  - installing and/or replacing preformed repair rods
- checking electrical integrity of insulators prior to work encompassing:
  - visual and audible assessment
  - test for disc voltage difference
  - plot data
  - assess data
  - determining condition of an insulator string
- rigging procedures for live work encompassing
  - identification of rigging points on structures
  - selection and positioning of rigging equipment on structures
  - selection and operation of rope tackles
- safety observer principles and responsibilities encompassing:
  - 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.

## Links

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