



Australian Government

UETDRDU020 Joint, terminate and maintain gas and oil filled underground cables

Release: 1

UETDRDU020 Joint, terminate and maintain gas and oil filled underground cables

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package Release 4.0.

Application

This unit includes the skills and knowledge required to joint, terminate and maintain gas and oil filled underground cable 33 kilovolt (kV) and above, in the electricity supply industry (ESI).

It includes maintenance of gas and oil filled underground cables, the preparation of cables and phasing out, jointing and terminating and the preparation of the cable jointing bay.

It also includes the relevant safety procedures to ensure installation of cable is undertaken according to workplace requirements.

Note: Entry into this unit is for users who:

- *hold Certificate III in ESI - Distribution Underground - powerline worker qualification or equivalent.*

and

- *hold UETDRDU012 Joint, terminate and maintain high voltage underground paper insulated cable or equivalent*

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

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

Pre-requisite Unit

Refer to Application.

Competency Field

Distribution Underground

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

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

1 Prepare to joint, terminate and maintain gas and oil filled underground cables

- 1.1** Work plan is obtained, confirmed and communicated with relevant personnel in accordance with workplace requirements
- 1.2** Materials required for work are determined and obtained in accordance with work plan and workplace requirements
- 1.3** Work is prioritised and sequenced for completion in accordance with work plan and workplace requirements
- 1.4** Hazards are identified, risks assessed, and control measures identified and applied
- 1.5** Work permits are received and signed in accordance with workplace requirements
- 1.6** Plant, tools, equipment and personal protective equipment (PPE) required for work are determined, obtained and confirmed in working order
- 1.7** Worksite is prepared in accordance with the work plan and workplace requirements

2 Joint, terminate and maintain gas and oil filled underground cables

- 2.1** Legislation, regulations, standards, codes of practice and organisational workplace requirements for the work to be performed are applied and monitored
- 2.2** Lifting, working at heights, working in confined spaces and the use of plant, tools, equipment and PPE are carried out in accordance with workplace requirements
- 2.3** Hazard control measures are monitored in accordance with workplace requirements
- 2.4** Specialised equipment is used in accordance with workplace requirements
- 2.5** Cable is prepared for jointing, terminating and maintenance in accordance with manufacturer's instructions and workplace requirements
- 2.6** Cable is tested before jointing or terminating in

- accordance with the work plan and workplace requirements
- 2.7** Cable is jointed, terminated and maintained in accordance with manufacturer's instructions and workplace requirements
- 2.8** Cable is tested after jointing or terminating in accordance with the work plan and workplace requirements
- 2.9** Quality checks of work are undertaken in accordance with work plan and workplace requirements
- 3 Complete work and documentation**
- 3.1** Completed work is checked for compliance against the work plan and workplace requirements
- 3.2** Incidents or unplanned events are reported in accordance with workplace requirements
- 3.3** Worksite is rehabilitated, cleaned and made safe in accordance with workplace requirements
- 3.4** Plant, tools and equipment are cleaned, checked and returned to storage, and surplus resources and materials are managed in accordance with workplace requirements
- 3.5** Work permits are signed off in accordance with workplace requirements
- 3.6** Work records, reports and documentation are completed in accordance with workplace requirements

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 UET Transmission, Distribution and Rail Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is not equivalent to UETDRDU008 Install gas and oil filled specialised underground cables.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=229bace1-b7bc-4653-9300-dffb13ecfad7>

Assessment Requirements for UETDRDU020 Joint, terminate and maintain gas and oil filled underground cables

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 one (1) occasion and include:

- applying relevant legislation, regulations, standards, codes of practice and workplace requirements, including:
 - work health and safety (WHS)/occupational health and safety (OHS)
- obtaining, inspecting and using relevant personal protective equipment (PPE)
- obtaining and signing relevant work permits in accordance with workplace requirements
- identifying hazards, assessing risks, identifying, applying and monitoring control measures
- maintaining the following 33 kilovolt (kV) and above, pressurised cable types:
 - oil filled cables
 - gas filled cables
- performing at least two (2) of the following jointing methods:
 - straight through joint
 - straight stop joint
 - trifurcating joint
 - splitter joint
 - trifurcating/transition/stop
- performing at least two (2) of the following termination methods:
 - oil pressurised outdoor sealing end
 - gas impregnated switchgear (GIS) termination
 - gas filled termination
 - compound filled termination
- performing one (1) pressured plumbing connection
- performing at least two (2) of the following connections and techniques:
 - welded connectors
 - sweated connectors
 - compression connectors
- using specialist testing devices including:
 - voltage detectors

- cable identification equipment and spiking
- insulation resistance testers
- testing cable for residual gases
- using the following equipment and materials:
 - leak repair and pressure control cable freezing equipment
 - pressure control tapes
 - fittings and seals
- undertaking preparation for cable freezing, preliminary pressure control, and leak repair activities
- using the following cable terminating materials:
 - paper tape
 - paper rolls.

Knowledge Evidence

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

- relevant legislation, regulations, standards, codes of practice and organisational workplace requirements, including WHS/OHS requirements
- hazard, risk assessment and risk control requirements, including potential hazards
- types and application of PPE
- safe use of plant, tools and equipment
- application, purpose and types of permits
- gas and oil filled underground cable principles, including:
 - types of oil or gas filled underground cables - properties of paper insulation, oil and nitrogen gas, construction, reasons for gas and/or oil filled, characteristics and capabilities of the cable, and pressure/volume characteristics of gas and oil
 - precautions when handling
 - types and functions of tools and equipment used on oil or gas filled underground cables
 - techniques when handling, topping, storing and disposing of oil or gas filled underground cables
- maintaining oil or gas filled underground cables including:
 - types, function and serviceability of tools and equipment used for the maintenance of oil or gas filled underground cables
 - techniques in the safe maintenance of oil or gas filled underground cables
 - techniques in the safe testing/inspection of the oil or gas filled underground cables
- jointing and terminating oil or gas filled underground cables including:
 - types, function and serviceability of tools and equipment used for the jointing and terminating of oil or gas filled underground cables
 - techniques in the safe jointing and terminating oil or gas filled underground cables
 - techniques in the safe testing of the oil or gas filled underground cables

- gas and oil pressurised systems including:
 - types, characteristics and capabilities of pressurised systems
 - types and functions of specialised tools
 - techniques when testing, inspecting, handling, storing and disposing of pressurised systems
 - techniques in the safe maintenance of pressurised systems
 - techniques in the safe use of tools and equipment
 - techniques in determining route profiles and access locations.

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:

- relevant and appropriate materials, tools, equipment and PPE currently used in industry
- applicable documentation, including workplace requirements, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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