



Australian Government

UETTDRCJ21 Lay ESI electrical cables

Release: 1

UETTDRCJ21 Lay ESI electrical 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.

Application

This unit involves the skills and knowledge required to lay electrical supply industry (ESI) electrical cables.

It includes the direct laying of cables in trenches, on trays/racks, in troughs and/or in conduit or ducts. It also includes cable pulling methods, pulling tensions, minimum bending radii, reduction of frictional forces, use of supporting plant (e.g. dynamometers, rigging and winches), working on fire rated cable (FRC), polyvinyl chloride (PVC), air conditioning (A/C) ducted systems and using plant and equipment for laying and sealing ESI electrical cables.

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

Other conditions may apply under state and territory legislative and regulatory licencing 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

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

UETTDREL11 Apply sustainable energy and environmental procedures

UETTDREL16 Working safely near live electrical apparatus

Competency Field

Cable Jointing

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to lay ESI electrical cables

PERFORMANCE CRITERIA

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

- 1.1** Work schedules, 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 the laying of electrical cables 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** WHS/OHS and environmental hazards are identified, WHS/OHS risks are assessed and control measures identified in accordance with workplace procedures
- 1.6** Relevant permits are confirmed and signed in accordance with workplace procedures
- 1.7** Plant, equipment, tools and personal protective equipment (PPE) required for work are identified, obtained and confirmed in working order
- 1.8** Work site is prepared to minimise risk, damage to property, commerce and individuals in accordance with workplace procedures
- 1.9** Traffic management plan is confirmed as being applied in accordance with workplace procedures

2 Carry out the laying of ESI electrical cables

- 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

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| | 2.3 | Electrical cables are laid and sealed in accordance with workplace procedures |
| | 2.4 | Unplanned events are responded to in accordance with workplace procedures |
| | 2.5 | Quality checks of work are undertaken in accordance with workplace procedures |
| 3 Complete laying of ESI electrical cables | 3.1 | Completed work is checked against work plan, 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 | Work site is rehabilitated, cleaned up and made safe in accordance with workplace procedures |
| | 3.4 | Tools, equipment and surplus resources are, where appropriate, cleaned, checked and returned to storage in accordance with workplace procedures |
| | 3.5 | Relevant work permits are signed off 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 UETTDRCJ21A Lay ESI electrical cables.

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 UETTDRCJ21 Lay ESI electrical 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 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
- laying at least one (1) of the following:
 - high voltage (HV) polymeric
 - HV paper insulated
- laying at least one (1) of the following:
 - low voltage (LV) polymeric
 - LV paper insulated
- laying at least one (1) of the following:
 - direct lay
 - on racks
 - in conduits
- performing at least one (1) of the following cable pulling methods:
 - stocking pulling
 - bond pulling
 - armour pulling
 - nose pull attachments
- performing at least two (2) of the following cable sealing methods:
 - heat shrinkable
 - pre-stretched materials
 - tin/lead wiping
 - pre-moulded components
- using at least one (1) of the following cable cutting tools:
 - hydraulic cutters
 - electric reciprocating
 - motorised

- hand tools
- using at least four (4) of the following:
 - drum jacks
 - winches
 - spindles
 - capstans
 - bollards
 - cable trailers
 - rollers
 - lubricants
 - ropes
 - bell mouths
 - draw wires/rods
- 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:

- requirements for the use of enterprise construction manuals, system diagrams/plans and drawings
- safety precautions specific to the installation of underground cables encompassing:
 - excavation and trench safety regulations
 - gas detection procedures
 - working in confined spaces
 - personal protective equipment (PPE)
 - hazards for the use of liquid petroleum gas (LPG) equipment for jointing of underground cables
 - gas bottle testing procedures
 - permit to work systems and isolation procedures
 - trench excavation and reinstatement procedures
 - confined space rescue, including:
 - planning and identifying rescue procedures
 - establishing rescue responses and techniques
 - involvement of external emergency services
 - emergency procedures for the rescue of an electric shock victim, including cardiopulmonary resuscitation (CPR)
- installation of underground cable procedures encompassing:
 - types of tools and equipment
- methods of cable handling encompassing:

- direct laid cables
- duct laid cables
- solid laid cables
- cables supported in cleats or hangers
- corrosion protection
- minimum bending radius of cables
- methods of cable sealing encompassing:
 - shorting of cables cores
 - core of unterminated cables
 - methods of protection from corrosion
 - polymeric sheathed cables sealing with mastic lined
 - heat shrink caps buried sealed ends
- methods of installing conduits
- procedures for the safe use of LPG equipment for cable jointing
- traffic management, including:
 - purpose of traffic management
 - responsibilities in accordance with relevant statutory requirements
 - electricity supply industry (ESI) requirements
 - procedure used to provide an effective traffic management scheme
 - use of a two-way radio
- procedures for purchasing/ordering items, removing/dispatching items, stocktaking and record keeping
- safety precautions specific to handling underground cables
- requirements for the use of enterprise manuals, system diagrams/plans and drawings
- types and applications of underground cables
- construction types and structures of underground cables
- characteristics of different types of underground cables
- ratings.

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 PPE currently used in industry for laying ESI electrical cables
- applicable documentation, including workplace procedures, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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