



Australian Government

Assessment Requirements for UETDRDU001 Conduct high voltage testing of underground power cable system

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 Release 2.0.

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 legislation, regulations, standards, codes of practice and organisational workplace requirements, including:
 - work health and safety (WHS)/occupational health and safety (OHS)
 - handling underground power cables
- identifying hazards, assessing risks, identifying, applying and monitoring control measures
- obtaining, inspecting and using relevant personal protective equipment (PPE)
- obtaining and signing on and off relevant work permits in accordance with workplace requirements
- interpreting and using drawings, diagrams and instructions
- using at least one (1) of the following cable testing methods:
 - insulation resistance (IR)
 - very low frequency (VLF) alternating current (a.c.) withstand or monitored withstand
 - direct current (d.c.) withstand
- completing at least three (3) of the following cable tests:
 - sheath integrity
 - core insulation resistance
 - tan delta
 - partial discharge
 - high voltage (HV) withstand (VLF a.c.)
 - HV withstand (d.c.)
- analysing the testing result to determine the integrity of the cable system
- using testing equipment in accordance with workplace requirements
- recording test results in accordance with workplace requirements
- dealing with an unplanned event on at least one (1) occasion
- completing relevant work records, reports and documentation.

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:

- legislation, regulations, standards, codes of practice and organisational workplace requirements, including:
 - WHS/OHS
 - safe approach distances
 - working in confined spaces
 - trench safety
 - manual handling
- hazard, risk assessment and risk control requirements, including potential hazards
- types and application of PPE
- safe use of tools and equipment
- application, purpose and types of permits
- events constituting an unplanned event or incident
- procedures for responding to an unplanned event or incident
- work instruction requirements, including:
 - types of and layout of drawings
 - cable routes
 - manufacturer's instructions
 - testing standards
 - workplace documentation procedures
- HV paper insulated and polymeric cables, including:
 - types and sizes
 - construction, characteristics and properties
 - minimum bending radius
- HV testing requirements, including:
 - cable handling techniques
- types of and causes of cable defects, including:
 - poor jointing techniques (joints and terminations)
 - cracking or rupturing of cross-linked polyethylene (XLPE) or paper cable insulation
 - insulation porosity or other material defects
 - impurity inclusion or other contaminants in the main insulation
 - internal voids either in main insulation or in joints and terminations
 - water treeing
 - electrical trees
 - protrusions in the semi-conductive layers
 - insulation surface scratches or scoring
 - overheating by excess current

- insulation damage due to voltage transients
- mechanical damage to the outer sheath
- HV testing methods
- advantages and disadvantages of different HV testing methods
- HV failure of insulation
- use of HV testing equipment
- HV testing procedures.

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, facilities, equipment and PPE currently used for conducting HV testing of underground power cable system
- applicable documentation, including workplace requirements, relevant industry standards, equipment specifications, regulations, codes of practice and manufacturer's instructions.

Links

Companion Volume Implementation Guides are found in VETNet -

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