



Australian Government

UETDRRC005 Maintain, test and verify power systems in a very remote community

Release: 1

UETDRRC005 Maintain, test and verify power systems in a very remote community

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.

Application

This unit involves the skills and knowledge required to maintain, test and verify power systems and associated hardware in very remote communities in the electricity supply industry (ESI).

It includes working safely, isolating, maintaining and restoring generation power systems, solving problems on distribution electrical network circuits and apparatus, and completing functional testing.

It also includes using specialist tools, equipment, personal protective equipment (PPE), visual inspections, identifying non-compliance defects, the use of work permits and authorisation protocols.

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

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEERE0007 Conduct periodic maintenance of remote area power supply generator sets

UEERE0018 Maintain and repair remote area power generation facilities

UEERE0019 Maintain safety and tidiness of remote area power supply systems

UEERE0023 Work safely with remote area power supply systems

UEERE0041 Maintain operation of remote area power generation plant

UETDREL001 Apply environmental requirements

UETDREL004 Operate plant and equipment in the vicinity of live electrical apparatus

UETDREL005 Work safely in the vicinity of live electrical apparatus

UETDRRC006 Perform low voltage electricity network switching in a very remote community

UETDRRC007 Solve problems in electrical network apparatus in a very remote community

UETDRRC008 Solve problems in low voltage electrical network circuits in a very remote community

Competency Field

Remote Community

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to maintain, test and verify power systems

PERFORMANCE CRITERIA

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

- 1.1** Legislation, regulations, standards, codes of practice and organisational workplace requirements for the work to be performed are referred to and confirmed
- 1.2** Work plan is obtained and confirmed in accordance with workplace requirements
- 1.3** Materials required for work are identified and obtained in accordance with work plan and workplace requirements
- 1.4** Work is prioritised and sequenced for completion in accordance with workplace requirements
- 1.5** Hazards are identified, risks assessed and control measures identified and applied
- 1.6** Work permits are received and signed in accordance with workplace requirements
- 1.7** Switching/isolation schedule is developed in accordance with work plan and workplace requirements
- 1.8** Plant, tools, equipment and PPE required for work are

- determined, obtained and confirmed in working order
- 1.9** Specialist test equipment is obtained, confirmed in working order and calibrated in accordance with workplace requirements
 - 1.10** Worksite is prepared in accordance with work plan and workplace requirements
- 2 Carry out maintenance, testing and verification of generation power systems**
- 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, climbing, working at heights 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** Generation power system switching/isolation authorisation is obtained in accordance with switching/isolation schedule and workplace requirements
 - 2.5** Generation power systems are isolated, proved de-energised and earthed in accordance with switching/isolation schedule and workplace requirements
 - 2.6** Generation power systems equipment and associated hardware is maintained in accordance with work plan and workplace requirements
 - 2.7** Generation power systems equipment and associated hardware are visually inspected to confirm compliance in accordance with work plan and workplace requirements
 - 2.8** Generation power system authorisation is obtained to commence restoration in accordance with switching/isolation schedule and workplace requirements
 - 2.9** Generation power systems are tested and verified compliant in accordance with work plan, work permits and workplace requirements
 - 2.10** Incidents or unplanned events are responded to in

- accordance with workplace requirements
- 2.11** Quality checks of work are undertaken in accordance with work plan and workplace requirements
- 3 Solve electrical network apparatus and network circuit problems**
- 3.1** Legislation, regulations, standards, codes of practice and organisational workplace requirements for the work to be performed are applied and monitored
- 3.2** Lifting, climbing, working at heights and the use of plant, tools, equipment and PPE are carried out in accordance with workplace requirements
- 3.3** Hazard control measures are monitored in accordance with workplace requirements
- 3.4** Live testing or measuring requirements are determined in accordance with workplace requirements
- 3.5** Electrical network apparatus and network circuits are confirmed as isolated and earthed/short circuited in accordance with workplace requirements
- 3.6** Operating parameters of the circuit within the electrical network apparatus are verified in accordance with workplace requirements
- 3.7** Operating parameters of the network electrical circuits are verified in accordance with workplace requirements
- 3.8** Established methodical processes are used to identify electrical problems from measured and calculated values in accordance with workplace requirements
- 3.9** Electrical network apparatus circuit problems are solved without damage to apparatus or circuits to comply with workplace requirements
- 3.10** Electrical network circuit problems are solved without damage to apparatus or circuits to comply with workplace requirements
- 3.11** Earthing/short circuiting equipment is removed, permit signed off and electrical network apparatus and network circuits re-energised in accordance with workplace requirements
- 3.12** Electrical network apparatus and network circuits are tested to determine correct operation in accordance with

workplace requirements

3.13 Incidents or unplanned events are responded to in accordance with workplace requirements

4 Complete work and documentation

4.1 Completed work is checked for compliance against the work plan and workplace requirements

4.2 Incidents or unplanned events are reported in accordance with workplace requirements

4.3 Worksite is rehabilitated, cleaned and made safe in accordance with workplace requirements

4.4 Plant, tools and equipment are cleaned, checked and returned to storage in accordance with workplace requirements

4.5 Surplus materials are returned to storage or disposed of in accordance with workplace requirements

4.6 Work records, reports and documentation are completed, and appropriate personnel notified 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 UETTDRI99 Test and Verify Distribution Remote Area Installations.

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 UETDRRC005 Maintain, test and verify power systems in a very remote community

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 one occasion 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)
- identifying hazards, assessing risks, identifying, applying and monitoring control measures
- obtaining, inspecting and using relevant personal protective equipment (PPE)
- preparing, issuing and signing on and off relevant work permits in accordance with workplace requirements
- isolating and restoring generation power systems, including:
 - identifying isolation points
 - preparing a generation isolation and restoration permit to work schedule
 - obtaining authorisation to isolate and restore generation power systems
 - isolating and restoring generation power systems in accordance with switching/isolation schedule
- maintaining generation power system, including:
 - conducting routine safety inspections
 - inspecting generation power system facilities
 - carrying out scheduled generator engine service
 - checking generation power system fuel facilities
 - conducting generation power station operational readings
- testing and maintaining generation power systems, including:
 - electrical equipment and switchgear
 - electrical earthing systems
 - identifying non-compliance
 - rectifying non-compliance or defects
 - completing testing documentation
- confirming network apparatus and network electrical circuits are isolated
- determining the operating parameters of a circuit within the electrical network apparatus
- using established methodical processes to solve electrical problems in accordance with

workplace requirements, including:

- choosing correct instruments and ranges for testing and measuring values
- connecting instruments to measure and calculate values in electrical network apparatus and network circuits
- identifying electrical network apparatus and network circuits problems, including at least three (3) of the following:
 - high (HV)/low voltage (LV)
 - high resistance
 - low resistance
 - fault current (fuses)
 - kilowatt hour meter faults (no supply, reverse polarity etc)
 - public lighting faults
- working from at least one (1) of the following:
 - elevated work platform (EWP)
 - platform
 - ladder
- connecting and testing electrical network apparatus and network circuits to determine correct operation
- removing earthing/short circuiting equipment and re-energising electrical network apparatus and network circuits 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
 - environmental
 - wiring rules requirements – continuity test and insulation resistance test
- hazard, risk assessment and risk control requirements, including potential hazards
- types and application of PPE
- safe use of plant, tools and equipment
- types, purpose and application of work permits
- organisational workplace requirements, including:
 - generation power systems
 - electrical safety
 - isolation and restoration switching schedules
- generation power systems, including:

- balance of plant
- piping and instrument diagrams
- control and switch rooms
- electrical switchgear
- electrical protection
- generation power system isolation and restoration, including:
 - generation permit to work
 - lock out, tag out (LOTO)
 - authorisations
- generation power system testing, including:
 - electricity network voltages
 - commissioning
- safe use, care and storage of electrical instruments
- fault loop impedance, including:
 - term fault loop impedance of an alternating current (a.c.) power system
 - measuring fault loop impedance of typical circuits
 - procedures for testing fault loop impedance
- single phase systems
- multi-phase systems
- impedance in a.c. circuits
- documentation and reports, including:
 - work records
 - tests and commissions
 - incidents and unplanned events
 - periodic inspections
 - non-compliance and defects
- events constituting an unplanned event or incident
- procedures for responding to an unplanned event or incident.

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 maintaining, testing and verifying generation power systems, network apparatus and network electrical circuits in a very remote community
- applicable documentation, including workplace requirements, network construction standards, network supply standards, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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