



Australian Government

UETDRDU003 Install and maintain gas and oil pressure systems for specialised underground cables

Release: 1

UETDRDU003 Install and maintain gas and oil pressure systems for specialised 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 2.0.

Application

This unit covers the installation, maintenance and repair of oil and gas pressure systems for specialised underground cables. It includes the undertaking of pressure control activities, the installation of gauges, oil tanks and gas cubicles. It also includes knowledge of oil route profiles as well as the operation of pressure equipment for jointing works, and the repairing and replacing of pressure systems. It also encompasses the procedures associated with performing accessory impregnation, oil flow testing, the processes for oil degasification and performing leak location of pressure systems.

The application of the skills and knowledge described in this unit may require a licence/registration to practice in the workplace subject to regulations for undertaking of electrical work.

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

Pre-requisite Unit

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

UETDRDU009 Install, test and verify distribution underground cable installations

UETDRDU012 Joint, terminate and maintain high voltage underground paper insulated cable

UETDRDU013 Joint, terminate and maintain high voltage underground polymeric cable

UETDRDU015 Joint, terminate and maintain low voltage underground polymeric cable

UETDRDU016 Lay power cables

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

UETDRIS008 Install and maintain electrical apparatus

UETDRIS011 Install and maintain low voltage underground services

Competency Field

Distribution Underground

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

1 Prepare/plan to install and maintain oil and gas pressure systems for specialised underground cables

- 1.1** Work schedules, including drawings, plans, requirements, established procedures and material lists, are obtained, analysed, as necessary, by site inspection and the extent of the preparation of the work determined for planning and coordination
- 1.2** Work is prioritised and sequenced for the most efficient and effective outcome following consultation with others for completion within acceptable timeframes, to a quality standard and in accordance with established procedures
- 1.3** Risk control measures are identified, prioritised and evaluated against the work schedule
- 1.4** Relevant requirements and established procedures for the work are communicated to all personnel and identified for all worksites
- 1.5** Hazards are identified, work health and safety (WHS)/occupational health and safety (OHS) risks assessed and control measures prioritised, implemented and monitored, including emergency exits kept clear, to ensure safe systems of work are followed and according

to established procedures

- 1.6** Relevant work permits are secured to coordinate the performance of work according to requirements and/or established procedures
- 1.7** Resources, including personnel, equipment, tools and personal protective equipment (PPE), required for the job are identified, scheduled and coordinated and confirmed safe and in technical working order
- 1.8** Clients/customers are provided with possible solutions and/or options within the scope, acceptable cost and requirements
- 1.9** Liaison and communication issues with others/authorised personnel, authorities, clients and landowners are resolved and activities coordinated to carry out work
- 1.10** Site is prepared according to the work schedule and to minimise risk and damage to property, commerce and individuals in accordance with established procedures
- 1.11** Personnel participating in the work, including plant operators and contractors, are fully briefed and respective responsibilities coordinated and authorised, where applicable, in accordance with established procedures
- 1.12** Positioning of road signs, barriers and warning devices is planned and coordinated in accordance with requirements

2 Carry out the installation and maintenance of oil and gas pressure systems for specialised underground cables

- 2.1** WHS/OHS and sustainable energy principles and practices to reduce the incidents of accidents and minimise waste are monitored and actioned in accordance with requirements and/or established procedures
- 2.2** First aid, rescue and other related work procedures are performed according to requirements and/or established procedures
- 2.3** Lifting, climbing, working in confined spaces and aloft, and use of power tools/equipment, techniques and practices are safely exercised according to requirements
- 2.4** Hazard warnings and safety signs are recognised and hazards and assessed WHS/OHS risks are reported to

- immediate authorised personnel for directions according to established procedures
- 2.5** Remedial actions are taken to overcome any shortfalls encountered in the work schedule according to requirements and/or established procedures
- 2.6** Installation and/or maintenance of oil and gas pressure systems for specialised underground cables are carried out in accordance with the work schedule and requirements and/or established procedures
- 2.7** Essential knowledge and associated skills are applied in the safe installation and/or maintenance of oil and gas pressure systems for specialised underground cables to ensure completion in an agreed timeframe and to quality standards with a minimum of waste according to requirements
- 2.8** Solutions to non-routine problems are identified and actioned using acquired essential knowledge and associated skills according to requirements
- 2.9** Ongoing checks of quality of the work are undertaken in accordance with requirements and established procedures to ensure a quality outcome is achieved for the client/customer and to a community/industry standard
- 3 Complete the installation and maintenance of oil and gas pressure systems for specialised underground cables**
- 3.1** Work undertaken is checked against work schedule for conformance with requirements, anomalies reported and solutions identified in accordance with established procedures
- 3.2** Accidents and/or injuries are reported and followed up in accordance with requirements/established procedures
- 3.3** Worksite is rehabilitated, cleaned up and confirmed safe in accordance with established procedures
- 3.4** Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures
- 3.5** Relevant work permits are signed off and underground cables are returned to service and advised to client/customer in accordance with requirements

- 3.6** Work completion records, reports, as installed/modified drawings and/or documentation and information are confirmed, processed and appropriate personnel notified

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 equivalent to UETTDRCJ32 Install and maintain gas and oil pressure systems for 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 UETDRDU003 Install and maintain gas and oil pressure systems for specialised underground cables

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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
- installing and maintaining oil and gas filled pressure systems
- using all of the following oil and gas processing and control equipment:
 - gas analyser/detector
 - cable freezing equipment
 - accessory impregnation equipment
 - oil degasification plant
 - manometers
 - flow boards
 - vacuum pumps
 - site bottles
 - gas cylinders
 - liquid nitrogen cylinders
 - pressure/vacuum meters
 - oil evacuation pumps
 - oil and gas piping equipment
 - oil sampling equipment
- using all of the following gas processing and control equipment:
 - gas control cubicles
 - oil control cubicles
 - oil degasification units
 - oil pressure tanks
- undertaking jointing and terminating of oil or gas filled specialised underground cables
- 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:

- oil or gas filled specialised underground cables encompassing:
 - legislation, standards, codes, supply authority regulations and/or enterprise requirements pertaining to the working with oil or gas filled specialised underground cables
 - types of oil or gas filled specialised underground cables - properties of paper insulation, oil and nitrogen gas, construction, reasons for gas and/or oil filled, characteristics and capabilities of the cable, pressure/volume characteristics of oil and gas, and precautions when handling
 - types and functions of tools and equipment used on oil or gas filled specialised underground cables
 - techniques when handling, storing and disposing of oil or gas filled specialised underground cables
- installation of oil or gas filled specialised underground cables encompassing:
 - legislation, standards, codes, supply authority regulations and/or enterprise requirements pertaining to the installation of oil or gas filled specialised underground cables
 - safety precautions of working with oil or gas filled specialised underground cables - safe operation procedures; WHS/OHS hazards and precautions; dangers of working in confined spaces; identification of WHS/OHS hazards; assessing and controlling risks; types, selection, maintenance, storage and uses of personnel protective equipment (PPE), including intrinsically safe equipment for use in confined and hazardous environments; permit/authorisation to work systems and isolation procedures; safe working policies, procedures and practices when using/operating specialised equipment; and emergency response and rescue, including first aid
 - types, function and serviceability of tools and equipment used for the installation of oil or gas filled specialised underground cables
 - techniques in the safe installation of oil or gas filled specialised underground cables
 - techniques in the safe testing/inspection of the oil or gas filled specialised underground cables to ensure successful installation has occurred
- jointing and termination of oil or gas filled specialised underground cables encompassing:
 - legislation, standards, codes, supply authority regulations and/or enterprise requirements pertaining to working with oil or gas filled specialised underground cables
 - safety precautions of working with oil or gas filled specialised underground cables - safe operation procedures; WHS/OHS hazards and precautions; dangers of working in confined spaces; identification of WHS/OHS hazards; assessing and controlling risks; types, selection, maintenance, storage and uses of PPE, including intrinsically safe equipment for use in confined and hazardous environments; permit/authorisation to work systems and isolation procedures; safe working policies, procedures and practices when using/operating specialised equipment; and emergency response and rescue, including first aid
 - types, function and serviceability of tools and equipment used for the jointing and terminating of oil or gas filled specialised underground cables

- techniques in the safe jointing and terminating oil or gas filled specialised underground cables
- techniques in the safe testing of the oil or gas filled specialised underground cables to ensure successful jointing and/or termination has occurred
- maintenance of oil or gas filled specialised underground cables encompassing:
 - legislation, standards, codes, supply authority regulations and/or enterprise requirements pertaining to the maintenance of oil or gas filled specialised underground cables
 - safety precautions of working with oil or gas filled specialised underground cables - safe operation procedures; WHS/OHS hazards and precautions; dangers of working in confined spaces; identification of WHS/OHS hazards; assessing and controlling risks; types, selection, maintenance, storage and uses of PPE, including intrinsically safe equipment for use in confined and hazardous environments; permit/authorisation to work systems and isolation procedures; safe working policies, procedures and practices when using/operating specialised equipment; and emergency response and rescue, including first aid
 - safe storage and disposal of oil or gas filled specialised underground cables and associated equipment and components
 - types, function and serviceability of tools and equipment used for the maintenance of oil or gas filled specialised underground cables
 - techniques in the safe maintenance of oil or gas filled specialised underground cables
 - techniques in the safe testing/inspection of the oil or gas filled specialised underground cables to ensure successful maintenance has occurred
- oil and gas pressurised systems for specialised underground cables encompassing:
 - legislation, standards, codes, supply authority regulations and/or enterprise requirements pertaining to the installation and maintenance of oil and gas pressurised systems
 - safe storage and disposal of oil or gas pressurised equipment and associated components
 - requirements for the use of manuals, system diagrams/plans, drawings, charts and layouts
 - characteristics, application and care of hand and specialised tools
 - techniques in determining route profiles and access locations
 - pressure system characteristics for oil filled and gas filled cables
 - techniques in the safe installation of oil and gas pressurised systems
 - techniques in the safe maintenance of oil and gas pressurised systems
 - techniques in the safe use of tools and equipment in the process of installation and maintenance of oil and gas pressurised systems - gas analyser/detector, manometers, flow boards, cable freezing equipment, accessory impregnation equipment, oil degasification plant, manometers, flow boards, vacuum pumps, site bottles, gas cylinders, pressure/vacuum meters, oil evacuation pumps, Residual Gas Pressure (RGP) equipment, oil sampling equipment, gas control cubicles, oil control cubicles, cable joints and terminations, oil degasification units and oil pressure tanks
- enterprise-specific policies and procedure instructions encompassing:
 - responsibilities and duty of care of employer and employee relationship
 - methods of obtaining the up-to-date information on enterprise policies and procedures
 - rules and regulations

- induction into workplace - location of work area and storage area, timetable, uniform, personal wellbeing, housekeeping rules, emergency procedures and evacuation procedures
- techniques when dealing with others - working in teams, customer relations, and complaint and issues procedures
- overview of enterprise professional development - fire-fighting procedures, fatigue management, training and competency development - understanding and promotion
- enterprise-specific WHS/OHS instructions encompassing:
 - standards, codes, legislation, supply authority regulations and specific enterprise regulations pertaining to WHS/OHS policies and procedures
 - methods of obtaining the up-to-date information on enterprise WHS/OHS policies and procedures
 - specific enterprise PPE - type and application; where and when to be used; method of replacement; responsibility of maintenance, including cleaning, inspection and testing; and emergency response, rescue, evacuation and first aid procedures
 - personal wellbeing – hygiene, fatigue/stress management and drugs/alcohol
 - WHS/OHS training - induction training, specific hazard training, specific task or equipment training, emergency and evacuation training, and training as part of broader programs, such as equipment operation
 - WHS/OHS records - audits; inspection reports; workplace health and environmental monitoring records; training and instruction records; manufacturer and supplier information, such as material safety data sheets (MSDS); registers; maintenance reports; workers compensation and rehabilitation records; and first aid/medical records
- enterprise-specific technical drawing and documents encompassing:
 - types and application of enterprise-specific drawings and documents - electrical and electronic drawings, mechanical drawings, project charts, schedules, graphs, technical manuals and catalogues
 - instructions/worksheets - types and application of enterprise-specific symbols and diagrams
 - title box - description of parts and version control.

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
- applicable documentation, including workplace procedures, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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