



Australian Government

UETDRIS017 Perform high voltage field switching operation to a given schedule

Release: 3

UETDRIS017 Perform high voltage field switching operation to a given schedule

Modification History

Release 3. Unit application 'qualification' spelling corrected and numeral '(2)' added in Performance Evidence for clarification.

Release 2. Unit application updated for clarification.

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 perform high voltage (HV) field switching operation to a given schedule in the electricity supply industry (ESI).

It includes the approval process, isolating, paralleling and restoring HV overhead and underground electricity networks using circuit breaking and isolating equipment, specialised tools, personal protective equipment (PPE) and testing equipment.

It also includes proving de-energised, short circuiting and earthing, preparing, issuing and cancelling work permits.

Note: *Those holding an existing Certificate III ESI Distribution Overhead, Distribution Underground qualification or equivalent meets the prerequisite unit requirements.*

Those holding an existing Diploma / Advanced Diploma of ESI Power Systems or Certificate III Electrotechnology Electrician qualification or equivalent partially meets the prerequisite unit requirements. They are still required to complete:

- UETDREL004 Operate plant and equipment in the vicinity of live electrical apparatus
- UETDREL005 Work safely in the vicinity of live electrical apparatus
- UETDRIS018 Perform low voltage field switching operation to a given schedule

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

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

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

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

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0021 Solve problems in magnetic and electromagnetic devices

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

UETDRIS018 Perform low voltage field switching operation to a given schedule

Competency Field

Industry Specific Cross Discipline

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for HV field switching

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** Switching schedule is obtained and confirmed in accordance with workplace requirements
- 1.3** Plant, tools, equipment and PPE required for work are determined, obtained and confirmed in working order
- 1.4** Hazards are identified, risks assessed and control measures identified and applied
- 1.5** Work is prioritised and sequenced for completion in accordance with switching schedule and workplace requirements
- 1.6** Work permit/approval is organised in accordance with workplace requirements
- 1.7** Worksite is prepared in accordance with workplace requirements

2 Carry out HV field switching

- 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** Communication with switching controller is established and maintained during switching in accordance with workplace requirements
- 2.5** Approval is obtained to commence HV field switching in accordance with switching schedule and workplace requirements
- 2.6** HV field switching is performed in accordance with the switching schedule and workplace requirements
- 2.7** Work permit is written and issued in accordance with the switching schedule and workplace requirements
- 2.8** Work permit is cancelled or relinquished in accordance with workplace requirements
- 2.9** Approval is obtained to commence restoration of HV supply in accordance with switching schedule and workplace requirements
- 2.10** HV field switching is performed to restore network to normal in accordance with the switching schedule and workplace requirements
- 2.11** Switching controller is notified HV restoration has been completed in accordance with switching schedule and workplace requirements
- 2.12** Incidents or unplanned events are responded to in accordance with workplace requirements

3 Complete work and documentation

- 3.1** Incidents or unplanned events are reported in accordance with workplace requirements
- 3.2** Worksite is rehabilitated, cleaned and made safe in accordance with workplace requirements

- 3.3 Plant, tools and equipment are cleaned, checked and returned to storage in accordance with workplace requirements
- 3.4 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 equivalent to UETTDRIS44 Perform HV field switching operation to a given schedule.

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 UETDRIS017 Perform high voltage field switching operation to a given schedule

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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 (2) 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)
- identifying hazards, assessing risks, identifying, applying and monitoring control measures
- obtaining, inspecting and using relevant personal protective equipment (PPE)
- verifying switching scheduling documents
- establishing and maintaining communications with the following:
 - switching controller
 - permit holders
 - other network stakeholders
- obtaining approval to perform high voltage (HV) field switching to a given schedule
- performing HV field switching operation to a given schedule completing at least two (2) of the following:
 - isolation
 - restoration
 - paralleling
- performing at least two (2) of the following tests:
 - proved de-energised*
 - voltage
 - phasing
 - (*must do)
- operating at least four (4) of the following HV electrical apparatus:
 - HV links/isolators/disconnectors
 - air-break switches

- fuses
- ring main switch
- earth switches
- reclosers
- circuit breakers
- sectionalisers
- live line clamps
- load break elbows
- using at least two (2) of the following specialist tools and equipment:
 - HV phasing sticks
 - HV ground mounted equipment isolating handles
 - HV operating sticks
 - HV earths
- using tags and locks
- organising, issuing, cancelling or relinquishing relevant work permits/approvals 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:

- relevant legislation, regulations, standards, codes of practice and organisational workplace requirements, including:
 - WHS/OHS
 - safe approach distances
- 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 work permits
- events constituting an unplanned event or incident
- procedures for responding to an unplanned event or incident
- types, characteristics and capabilities of specialised tools and testing equipment, including:
 - insulated equipment
- purpose, layout and application of switching schedules
- HV field switching principles and procedures, including:
 - roles and responsibilities
 - procedures for coordination of operations
 - isolation, restoration and paralleling
 - proving de-energised

- earthing
- pre- and post-switching checks
- fault finding
- alternate sources of supply and possible back-feed
- primary causes, effects and types of HV electrical faults
- emergency fault procedures
- operation of HV switchgear
- HV feeder auto-reclosing suppression
- distribution protection systems, including:
 - types, operation and applications
 - protection equipment
- HV switchgear, including:
 - types and categories (including live line clamps)
 - application, function and operating capabilities
- application and function of the single wire earth return (SWER) system components, including:
 - circuit arrangement
 - principle of operation
 - hazards and procedures associated with faulty SWER earth systems
 - procedure to isolate, energise and commission SWER transformer
- operation of HV distribution transformers, including:
 - principles governing factors for transformer ratings
 - operating limitations and the relationship between transformer and HV fuse rating
 - purpose and principle operation of HV distribution transformer tap changers
 - paralleling requirements
- functions of supervisory control and data acquisition (SCADA) (or any other relevant data acquisition and control) systems and its main components
- function of the main components of a local/remote control system.

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 in industry for perform HV field switching operations to a given schedule
- applicable documentation, including workplace requirements, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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