



Australian Government

Department of Education, Employment and Workplace Relations

UETTD RIS35A Perform remote community network field switching to a given schedule

Release: 1

UETTDRIS35A Perform remote community network field switching to a given schedule

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This Competency Standard Unit covers the conducting of low voltage network field switching operations involving the operation of circuit breaking and isolation devices from a given switching schedule and in accordance with enterprise procedures. It covers low voltage distribution systems in remote community situations but also includes paralleling in accordance with the switching schedule. It also encompasses the procedure of; communicating with the Switching Control Officer or Electrical Control Officer, isolating the electrical equipment and the line or work site, as well as proving that the area is de-energised and earthed, issuing/accepting electrical permits and the returning of the affected circuits to service.

Application of the Unit

Application of the Unit 2)

This Competency Standard Unit is intended to augment formally acquired competencies. It is suitable for employment-based programs under an approved contract of training.

Licensing/Regulatory Information

License to practice 3)

The skills and knowledge described in this unit may

License to practice**3)**

require a licence/registration to practice in the work place subject to regulations for undertaking of electrical work. Practice in workplace and during training is also subject to regulations directly related to Occupational Health and Safety, electricity/telecommunications/gas/water industry safety and compliance, industrial relations, environmental protection, anti discrimination and training. Commonwealth, State/Territory or Local Government legislation and regulations may exist that limits the age of operating certain equipment.

Pre-Requisites**Prerequisite Unit(s)****4)****Competencies****4.1)**

Granting of competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed.

Where pre-requisite pathways have been identified. All competencies in the Common Unit Group must be have been completed.

Common Unit Group

Unit Code	Unit Title
UEENEEE101A	Apply Occupational Health and Safety regulations, codes and practices in the workplace
UEENEEE102A	Fabricate, assemble and dismantle utilities industry components
UEENEEE105A	Fix and secure electrotechnology equipment
UEENEEE107A	Use drawings, diagrams, schedules, standards, codes and specifications
UEENEEE137A	Document and apply measures to control OHS risks associated with electrotechnology work

Prerequisite Unit(s) 4)

UEENEEK101A	Maintain safety and tidiness of remote area power supply systems
UEENEEK102A	Work safely with remote area power supply systems
UETTDREL12A	Operate plant and equipment near live electrical conductors and apparatus

Literacy and numeracy skills 4.2)

Participants are best equipped to achieve this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 “Literacy and Numeracy”

Reading	3	Writing	3	Numeracy	3
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Employability Skills Information**Employability Skills 5)**

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a competency standard unit

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Prepare for the LV field switching to a given schedule	1.1 Switching and work schedule(s), including drawings, plans, requirements, established procedures, and material lists, are received, analysed and confirmed, if necessary, by site inspection. 1.2 Relevant requirements and established procedures for the work are communicated to all personnel and identified for all work sites. 1.3 OHS policies and procedures related to requirements and established procedures for LV switching are obtained and confirmed for the purposes of the work to be performed and communicated. 1.4 Work is prioritised and sequenced following consultation with others for completion within acceptable timeframes and in accordance with established procedures. 1.5 Hazards are identified, OHS risks assessed and control measures are prioritised, implemented and monitored including emergency exits kept clear according to established procedures. 1.6 Relevant authority is obtained to perform work according to requirements and/or established procedures. 1.7 Resources including personnel, equipment, tools and personal protective equipment required for the job are obtained and confirmed in working order. 1.8 Relevant personnel at worksite are confirmed current in First Aid and other related work procedures according to requirements. 1.9 Liaison and communication issues with other/authorised personnel, authorities, clients and land owners are resolved to carry out work where necessary. 1.10 Site is prepared according to the work schedule and to minimise risk and damage to property,

ELEMENT**PERFORMANCE CRITERIA**

		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 confirmed where applicable in accordance with established procedures.
	1.12	Road signs, barriers and warning devices are positioned in accordance with requirements.
2	Carry out LV field switching to a given schedule	2.1 OHS and sustainable energy principles and practices to reduce the incidents of accidents and minimise waste are monitored and followed in accordance with requirements and/or established procedures. 2.2 Lifting, climbing, working in confined spaces and aloft, and use of power tools/equipment, techniques and practices are safely followed and, currency according to requirements confirmed. 2.3 Essential knowledge and associated skills in the safe LV field switching to a given schedule are applied to ensure completion in an agreed timeframe and, to quality standards with a minimum of waste according to requirements. 2.4 Communications with Switching Control Officer are established and maintained throughout the isolation operation according to established procedures. 2.5 Electrical equipment and associated circuits line/network or work site to be switched including paralleling is isolated and proved de-energised using appropriate devices and earthed where required according to requirements and established procedures. 2.6 Hazard warnings and safety signs are recognised and hazards and assessed OHS risks are reported to the immediate authorised persons for directions according to established procedures. 2.7 Unplanned events occurring during LV field

ELEMENT

PERFORMANCE CRITERIA

- | | | |
|---|---|--|
| | | switching to a given schedule are responded to and undertaken within the scope of established procedures. |
| | 2.8 | Known solutions to a variety of problems are applied using acquired essential knowledge and associated skills. |
| | 2.9 | Ongoing checks of quality of the work are undertaken in accordance with instructions and established procedures |
| 3 | Complete the LV field switching to a given schedule | <p>3.1 Work undertaken is checked against works schedule for conformance with requirements and anomalies reported in accordance with established procedures.</p> <p>3.2 Accidents and/or injuries are reported in accordance with requirements/established procedures, where applicable.</p> <p>3.3 Work site is rehabilitated, cleaned up and made safe in accordance with established procedures.</p> <p>3.4 Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures.</p> <p>3.5 Relevant permit(s) are signed off, safety devices are removed, and the system is re-energised and returned to service in accordance with requirements/established procedures.</p> <p>3.6 Works completion records, reports, as installed /modified drawing and/or documentation and information are finalised and processed and appropriate personnel and authority notified.</p> |

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) Essential Knowledge and Associated Skills (EKAS): This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of performing high voltage field switching to a given schedule.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

KS01 –TIS35A Remote community network field switching

Evidence shall show an understanding of the remote community network field switching to an extent indicated by the following aspects:

T1 Legislation, Standards, codes, legislation, supply authority regulations and or enterprise requirements applicable to system switching

T2 Requirements for the use of manuals, system diagrams/plans and drawings encompassing:

- Types, characteristics and capabilities of electrical apparatus
- Use, characteristics and capabilities of specialised tools and testing equipment
- LV network interconnectors for alternate sources of supply and possible backfeed.
- HV network interconnectors source of possible backfeed

T3 Procedures for obtaining correct LV switching authorisation encompassing:

- Identification of hazards, assessing and controlling risks
- Safety procedures and precautions
- Safe approach distances
- Responsibilities and protocols
- Identifying switching resources
- Procedures for obtaining electrical access permits/authorities
- Requirements for team switching
- Procedures for coordination of operations

T4 Techniques in LV system switching encompassing:

- Isolation procedures and proving dead
- Pre-switching checks
- Switching operational procedures
- Emergency fault procedures
- Energisation procedures

T5 Role of the HV switching operator

T6 Procedures for obtaining correct HV switching authorisation encompassing:

- Identification of OHS hazards, assessing and controlling risks
- Safety procedures and precautions

REQUIRED SKILLS AND KNOWLEDGE

- Safe approach distances
- Responsibilities and protocols
- Identifying switching resources
- Procedures for obtaining electrical access permits/authorities
- Requirements for team switching
- Procedures for coordination of operations

T7 Use and operation of equipment associated with HV overhead and substation equipment encompassing:

- Test instruments
- Sticks
- Interrupters
- Arc strangles

T8 Operation of protection systems and substation equipment

- Note: Examples include fault levels and settings; types and applications; protection systems and substation equipment fault levels and settings; types and applications

T9 Types and categories of HV switchgear

T10 Application, function and operating capabilities of switchgear

T11 Restrictions pertaining to HV switching equipment

T12 Procedures for the isolation of HV transmission main and working earths

T13 Earthing HV electrical apparatus practices and procedures for access encompassing:

- Purposes of Operational and additional work part - on-site earths
- Factors determining the location and effectiveness of Operational earthing
- Acceptable industry procedures
- Personal protective equipment

T14 High voltage switching techniques

- Pre-switching checks
- Switching operational procedures
- Isolation procedures and proving dead/de-energised
- Earthing procedures
- Pre-switching checks
- Switching operational procedures
- Emergency fault procedures
- Energisation procedures

T15 Application and function of SWER system components

- Circuit arrangement

REQUIRED SKILLS AND KNOWLEDGE

- Principle of operation
- Hazards and procedures associated with faulty SWER earth systems
- Procedure to isolate, energise and commission SWER substations

T16 Operation of HV overhead switching or indicating devices encompassing:

- Identifying hazards, assessing and controlling risks associated with HV switchgear operation
- Systematic and defensive techniques
- Mobile radio procedures
- Double isolation procedures
- fuses; disconnect fuses; load switching; live line indicators; capacitors; reclosers; sectionalisers, underslung links, airbreaks; switches, disconnects; live line clamps; phasing sticks; phasing tester.

Evidence Guide

EVIDENCE GUIDE

9) This provides essential advice for assessment of the unit of competency and must be read in conjunction with the Performance Criteria and the range statement of the unit of competency and the Training Package Assessment Guidelines.

The Evidence Guide forms an integral part of this Competency Standard Unit and shall be used in conjunction with all component parts of this unit and, performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment 9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the Industry's preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accord with Industry and, Regulatory policy in this regard.

Methods chosen for a particular assessment will be influenced by

various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Hence, sources of evidence need to be 'rich' in nature so as to minimise error in judgment.

Activities associated with normal every day work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practiced. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this Training Package.

Critical aspects of evidence required to demonstrate competency in this unit 9.2)

Before the critical aspects of evidence are considered all prerequisites shall be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated Performance Criteria shall be demonstrated on at least two occasions in accordance with the “Assessment Guidelines – UET12”. Evidence shall also comprise:

- A representative body of Performance Criteria demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:
 - Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the Performance Criteria and range; and
 - Apply sustainable energy principles and practices as specified in the Performance Criteria and range; and
 - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit to such an extent that the learner’s performance outcome is reported in accordance with the preferred approach; namely a percentile graded result, where required by the regulated environment; and
 - Demonstrate an appropriate level of employability skills; and
- Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures; and
- Demonstrated performance across a representative range of contexts from the prescribed items below:

Range of tools/equipment/materials/procedures/workplaces/other variables		
Group No	The minimum number of items on which skill is to be	Item List

	demonstrated	
A	All of the following:	Approvals/clearances Access authority /permits
B	Any two of the following:	Voltage detectors Polarity testers Phase rotation indicators
C	Any one of the following:	LV links LV bridges LV fuses
D	At least one occasion:	Dealing with an unplanned event by drawing on essential knowledge and associated skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items.

Context of and specific resources for assessment 9.3)

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual performance of LV field switching to a given schedule.

In addition to the resources listed above, in Context of and specific resources for assessment, evidence should show demonstrated competency working below ground, in limited spaces, with different structural/construction types and method and in a variety of environments.

**Method of
assessment**

9.4)

This Competency Standard Unit shall be assessed by methods given in Volume 1, Part 3 “Assessment Guidelines”.

Note:

Competent performance with inherent safe working practices is expected in the Industry to which this Competency Standard Unit applies. This requires that the specified essential knowledge and associated skills are assessed in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and associated skills described in this unit.

**Concurrent
assessment and
relationship with
other units**

9.5)

There are no concurrent assessment recommendations for this unit.

Range Statement

RANGE STATEMENT

10) This relates to the unit of competency as a whole providing the range of contexts and conditions to which the Performance Criteria apply. It allows for different work environments and situations that will affect performance.

This Competency Standard Unit shall be demonstrated in relation to the conducting of low voltage switching operations involving the operation of circuit breaking and isolation devices from a given switching schedule as it relates to low voltage distribution systems in field situations but also includes paralleling in accordance with the switching schedule.

Operation of circuit isolation devices associated with energy reticulation systems/networks is confined to low voltage systems in field situations which are performed in accordance with a switching schedule and established procedures.

Switching Control Officer refers to an appropriate person designated as such by regulations, codes or enterprise arrangements who is responsible for coordinating and directing switching activities in consultation with field operatives.

Switchgear may include Low Voltage fuses, Low Voltage links and bridges.

Specialist tools and devices may include Low Voltage detectors, Low Voltage polarity testers and Low Voltage phase rotation indicators.

Switching program/schedule refers to structure, switch or equipment number; locations; Low Voltage distributor, spur or feeder; outage times; works order/plan

The following constants and variables included in the element/Performance Criteria in this unit are fully described in the Definitions Section 1 of this volume and form an integral part of the Range Statement of this unit:

- Appropriate and relevant persons (see Personnel)
- Appropriate authorities
- Appropriate work platform
- Assessing risk
- Assessment
- Authorisation
- Confined space
- Diagnostic, testing and restoration
- Documenting detail work events, record keeping and or storage of information
- Drawings and specifications
- Emergency
- Established procedures
- Fall prevention
- Hazards
- Identifying hazards

RANGE STATEMENT

- Inspect
- Legislation
- Notification
- OHS practices
- OHS issues
- Permits and/or permits to work
- Personnel
- Quality assurance systems
- Requirements
- Testing procedures
- Work clearance systems

Unit Sector(s)

Not applicable.

Competency Field

Competency Field **11)**

Industry Specific Cross-Discipline Units