



Australian Government

Department of Education, Employment and Workplace Relations

UEPOPS357B Operate Local L.V. Switchgear

Release: 1

UEPOPS357B Operate Local L.V. Switchgear

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit deals with the skills and knowledge required to undertake the local operation of low high voltage secondary circuit breaking devices.

Application of the Unit

Application of the Unit 2)

This 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 do not require a licence to practise in the workplace. However, practice in this unit is subject to regulations directly related to Occupational Health and Safety.

Pre-Requisites

Prerequisite Unit(s) 4)

Competencies 4.1)

Granting of competency in this unit shall be made only

Prerequisite Unit(s) 4)

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 have been completed.

There are no pre-requisite units.

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 levels. A description of what each level entails is provided in Section 2.3.1 Language, Literacy and Numeracy.

Reading 3 Writing 3 Numeracy 3

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 to operate low voltage secondary switchgear | 1.1 Work requirements are identified and clarified/confirmed with appropriate parties in accordance with enterprise procedures |
| | 1.2 Procedures/safety precautions when operating L.V. switch gears are identified and recognised in accordance with enterprise procedures |
| | 1.3 Location of switchgear is determined from appropriate drawings, plans and maps |
| | 1.4 Identify switch gear type and determine correct operating procedure in accordance with enterprise procedures |
| | 1.5 Examine and assess switch gear condition for safe operation in accordance with enterprise procedures |
| | 1.6 Suppress related protection if and where necessary in accordance with enterprise procedures |
| | 1.7 Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training |
| 2 Operate switch gear | 2.1 Mechanical operation and limitations of the equipment are identified in accordance with enterprise procedures |
| | 2.2 Implications of actions are identified and recognised in accordance with enterprise procedures |
| | 2.3 Switch gear is operated and confirmation that required status has been achieved is given in accordance with enterprise procedures |
| | 2.4 Racking, testing, isolation, circuit earthing and reinstatement procedures are carried out to manufacturer instructions and enterprise/site procedures |

| ELEMENT | PERFORMANCE CRITERIA |
|----------------------------------|---|
| | 2.5 Confirm test equipment's integrity and prove circuit de-energised in accordance with operating procedures |
| 3 Validate switch gear integrity | 3.1 Equipment inspected for safe operation in accordance with enterprise procedures |
| | 3.2 Switch gear environment is inspected to ensure all statutory requirements are met |
| | 3.3 Confirm switch gear operates in accordance with manufacturer specifications |
| 4 Complete documentation | 4.1 Documentation is updated, log sheets maintained and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures |

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of operating L.V switchgear. All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

The extent of the Essential Knowledge and Associated Skills required follows:

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Evidence shall show that knowledge has been acquired for safe working practices of:

T1 Relevant environmental, occupational health and safety legislation and regulations

T2 Enterprise procedures

T3 Plant drawings and manufacturers manuals

T4 Introduction to and typical arrangements of power production plant

T5 Relevant plant and equipment, its location and operating parameters

T6 Electric motor types and characteristics

T7 Switchgear types and characteristics

T8 Electrical protection types and characteristics

T9 Electrical fundamentals

T10 Relevant state and territory regulations

T11 Electrical protection equipment, types and characteristics

T12 H.V electrical operation procedure and practices

T13 Personal protective equipment requirements for L.V. switch gear operation

T14 Secondary switch gear operating parameters

T15 Enterprise recording procedures

T16 Consequences of operator actions

T17 H.V. power systems and parameters

T18 H.V. protection schemes

T19 Enterprise procedures

T20 Secondary switch gear construction and operation

T21 Isolation and earthing procedures

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Specific skills needed to achieve the Performance Criteria:

T1 Interpret plant drawings and manufacturers manuals

T2 Apply relevant state and territory regulations

T3 Apply enterprise recording procedures

T4 Locate relevant plant and equipment

T5 Operate switch gear within design parameters

T6 Identify plant status

T7 Prepare equipment for operation

T8 Communicate effectively

T9 Recognise abnormal switch gear operation

T10 Plan and prioritise work

T11 Use plans, diagrams and symbols

T12 Operate protection equipment

T13 Isolate and earth equipment

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 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 components parts of this unit and, performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment 9.1)

Longitude 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 practised. 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 pre-requisites 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 – UEP12”. Evidence shall also comprise:

- A representative body of work performance 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 Statement
 - Apply sustainable energy principles and practices as specified in the Performance Criteria and Range Statement
 - Demonstrate an understanding of the essential knowledge and associated skills as described in 6) Essential Knowledge and Associated Skills of this unit
 - Demonstrate an appropriate level of employability skills
 - Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures
- Demonstrated performance across a representative range of contexts from the prescribed items below:
 - The knowledge and application of relevant sections of: Occupational Health and Safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures
 - The preparation for secondary switchgear operations
 - The operation and knowledge of secondary switch gear
 - The implications of secondary switch gear operations
 - Apply environmental risk assessment process
 - Implement, monitor and review environmental procedures during the currency of the work

- Dealing with an unplanned event by drawing on essential knowledge and 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 work as prescribed by this unit.

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions.

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work.

In addition to the resources listed above in Context of assessment', evidence should show competency working, in limited spaces, with different types of plant and equipment as well as different structural/construction types and methods and in a variety of environments.

Method of assessment 9.4)

This unit shall be assessed by methods given in Section 1.3.00 Assessment Guidelines. Note: Competent performance with inherent safe working practices is expected in the Industry to which this 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 skills described in this unit.

**Concurrent
assessment and
relationship with
other units** **9.5)**

There are no recommended concurrent assessments with this unit, however in some cases efficiencies may be gained in terms of learning and assessment effort being concurrently managed with allied competency standard units where listed.

Nil

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.

Equipment may include Links (single and three phase), RMU (vacuum, oil, gas, air), Fuses (EDO, HRC,) Switches (vacuum, oil, gas, air), Isolators (Air gas vacuum oil), Circuit recloser (oil, gas), earthing and discharge equipment, gloves, testers, computers with equipment control functions; protection settings, alarm and control equipment. (Personal safety equipment). Any LV that directly impacts on HV switching (e.g. LV backfeeds).

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation and national standards for plant

Information and documentation sources may include verbal or written communications; single line drawing and schematics, enterprise safety rules documentation; enterprise operating instructions; dedicated computer equipment; enterprise/site standing and operating instructions; enterprise log books; manufacturer operation and maintenance manuals; and equipment and alarm manuals

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders, computers and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail), operating logs (written or verbal) and intercom

Appropriate personnel for consultation, to give or receive direction may include supervisor/team leader or equivalent, power plant operations personnel or equivalent, technical and engineering officers or equivalent, maintenance staff, other operating staff or equivalent, system controller/network controller and field operator and restricted H.V. operators

Implications may be safety of personnel and public, damage to equipment, loss of plant, legal implications, system integrity, capital cost, lost enterprise revenue and community costs.

Unit Sector(s)

Not applicable.

Competency Field

Competency Field **11)**

Operations.