



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **UEPOPS349B Operate Local H.V. switchgear**

**Release: 1**

## **UEPOPS349B Operate Local H.V. switchgear**

### **Modification History**

Not applicable.

### **Unit Descriptor**

#### **Unit Descriptor**

#### **1) Scope:**

##### **1.1) Descriptor**

This competency standard unit deals with the skills and knowledge required to undertake the local operation of high voltage 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 and where applicable contracts of training such as apprenticeships.

## 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.

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 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 H.V. circuit breakers are identified and recognised in accordance with enterprise procedures
	1.3 Identify circuit breaker type and determine correct operating procedure in accordance with enterprise procedures
	1.4 Examine and assess circuit breaker condition for safe operation in accordance with enterprise procedures
	1.5 Suppress related protection if and where necessary in accordance with enterprise procedures
	1.6 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 circuit breaker	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 Circuit breaker 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
	2.5 Confirm test equipment integrity and prove circuit de-energised in accordance with

ELEMENT	PERFORMANCE CRITERIA
3 Validate circuit breaker integrity	operating procedures
	3.1 Equipment inspected for safe operation in accordance with enterprise procedures
	3.2 Circuit breaker environment is inspected to ensure all statutory requirements are met
4 Complete documentation	3.3 Confirm circuit breaker operates in accordance with manufacturer specifications
	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 H.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 Switchgear types and characteristics

T7 Electrical protection types and characteristics

T8 Electrical fundamentals

T9 Relevant state and territory regulations

T10 Electrical protection equipment, types and characteristics

T11 Plant status;

T12 Circuit breaker operating parameters;

T13 Consequences of operator actions;

T14 H.V electrical operation procedure and practices

T15 Personal protective equipment requirements for H.V. circuit breaker operation

T16 H.V. power systems and parameters;

T17 H.V. protection schemes;

T18 Enterprise procedures;

T19 Circuit breaker construction and operation;

T20 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 relevant statutory legislation;

T4 Apply relevant enterprise/site safety procedures;

T5 Apply enterprise/site emergency procedures and techniques;

T6 Apply enterprise recording procedures;

T7 Locate relevant plant and equipment;

T8 Operate circuit breaker within design parameters;

T9 Identify plant status;

T10 Prepare equipment for operation;

T11 Communicate effectively;

T12 Recognise abnormal circuit breaker operation;

T13 Plan and prioritise work;

T14 Operate protection equipment;

## REQUIRED SKILLS AND KNOWLEDGE

T15 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:
  - Knowledge and application of relevant sections of: Occupational Health and Safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures
  - Preparation for primary switchgear operations
  - Operation and knowledge of circuit breakers
  - Implications of circuit breaker operations



- 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 circuit breaker (vacuum, oil, gas, air), isolators, earth switches, earthing trucks, earthing and discharge equipment, gloves, testers, phasing sticks, computers with equipment control functions; capacitor/condenser banks, protection settings, alarm and control equipment. (Personal safety equipment). Any LV that directly impacts on HV switching (e.g. VT's).

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 drawings; 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 intercoms.

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, 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.

Generic terms are used throughout this Training Package for vocational standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms are given in Section 2.1 Preliminary Information and Glossaries.

## Unit Sector(s)

Not applicable.

## Competency Field

**Competency Field**      **11)**  
Operations.