



Australian Government

UEPOPS089 Operate and monitor d.c. electrical systems

Release: 1

UEPOPS089 Operate and monitor d.c. electrical systems

Modification History

Release 1. This is the first release of this unit of competency in the UEP Electricity Supply Industry – Generation Sector Training Package Release 2.0.

Application

This unit involves the skills and knowledge required to operate and monitor local and remote operation of direct current (d.c.) electrical system, including switchgears, ring main units, switchboards, rectifier and distribution systems.

Electrical systems in power generating facilities distribute electrical power to system components and provide electrical protection for power sources and components.

Competency in this unit requires the ability to plan switching operations work; carry out operation of switchgear, switchboards and rectifier systems; test switchgear and rectifier equipment operation; analyse switchgear and rectifier system faults; inspect and monitor switchgear and switchboard systems; and complete all documentation. Individuals will, in general, work under supervision, in a power generation facility as an operator.

Power generation plant operators are trained and authorised to isolate, prepare plant and issue permits to work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

There are no prerequisite units

Competency Field

Operations

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential Performance criteria describe the performance needed to

outcomes.

demonstrate achievement of the element.

1 Plan and prepare for switching operations

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, environmental requirements and workplace procedures are identified, applied and monitored
- 1.2** Work requirements are identified from relevant personnel and documentation in accordance with workplace procedures
- 1.3** Documentation to determine d.c. electrical system plant status is assessed and evaluated in accordance with workplace procedures
- 1.4** Equipment inspection, preoperational checks and field preparation for d.c. electrical system service are carried out in accordance with manufacturers' recommendations and specifications, and workplace procedures
- 1.5** Switchboard and equipment operational prerequisites and switching sequences are established in accordance with manufacturers' recommendations and specifications, and workplace procedures

2 Carry out operation of switchgears, switchboards and rectifier systems

- 2.1** Operation of switchgear is carried out in accordance with manufacturers' recommendations and specifications, and workplace procedures
- 2.2** Isolation, removal and reinstatement of switchgear, switchboards and rectifier systems are carried out in accordance with manufacturers' recommendations and specifications, and workplace procedures
- 2.3** Paralleling requirements are assessed to meet d.c. electrical system stability in accordance with workplace procedures
- 2.4** Rectifier system is operated, isolated and reinstated in accordance with manufacturers' recommendations and specifications, and workplace procedures

3 Test switchgear and rectifier equipment operation

- 3.1** Operational tests are performed in accordance with workplace procedures
- 3.2** Switchgear and rectifier system equipment are observed for correct operational response in accordance with

		workplace procedures
	3.3	Switchgear and rectifier system equipment are returned to required operational status upon completion of testing in accordance with workplace procedures
4 Analyse system, switchgear and rectifier equipment faults	4.1	Causes of abnormal d.c. electrical system and switchgear operating conditions are identified by analysing technical and operational information in accordance with workplace procedures
	4.2	d.c. electrical system, and switchgear plant integrity and personnel safety are maintained in consultation with relevant personnel and technical and operational documentation in accordance with workplace procedures
5 Inspect and monitor system and switchboards	5.1	d.c. electrical system and switchgear is monitored and inspected for normal operation and to detect deviations in accordance with workplace procedures
	5.2	Relevant personnel are notified when defects and abnormal operating conditions are detected in accordance with workplace procedures
6 Complete documentation	6.1	Equipment problems and status are reported in accordance with workplace procedures
	6.2	Documentation is updated in accordance with workplace procedures

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 UEP Electricity Supply Industry – Generation Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPOPS406 Operate and monitor D.C. electrical systems.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>

Assessment Requirements for UEPOPS089 Operate and monitor d.c. electrical systems

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least two separate occasions and include:

- analysing system, switchgear and rectifier equipment, direct current (d.c.) electrical system and protection faults using diagnostic and test techniques
- applying work health and safety (WHS)/occupational health and safety (OHS) requirements, including:
 - emergency procedure
 - risk control measures
 - safe working practices
- communicating with personnel
- completing documentation using recording procedures
- conducting switching, switchgear, switchboard and rectifier system operations
- identifying d.c. electrical system plant status
- implementing regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- interpreting manuals
- monitoring and inspecting equipment and d.c. electrical system operation
- operating switchgear and equipment
- organising resources
- preparing d.c. electrical system plant and equipment for operation
- recognising and responding to abnormal d.c. electrical system plant operating conditions
- testing d.c. electrical system, switchgear and rectifier equipment operationally using data analysis techniques and tools
- working with permit to work system.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- arrangements of power production plant

- d.c. electrical system plant and equipment, location and operating parameters
- d.c. electrical system plant status
- d.c. switchgear types and characteristics
- manuals
- permit to work system
- regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- WHS/OHS requirements, including:
 - emergency procedure
 - risk control measures
 - safe working practices
- workplace documentation
- workplace policies and procedures.

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 workplace operational situations that replicate 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, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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