



Australian Government

UEPOPS343 Operate hydroelectric generating plant and auxiliary equipment

Release: 1

UEPOPS343 Operate hydroelectric generating plant and auxiliary equipment

Modification History

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

Application

This unit involves the skills and knowledge required to operate a hydroelectric power generating facility. It includes the operational and maintenance activities associated with hydroelectric operating plant and auxiliary equipment.

Auxiliary plant systems and related controls are used to support the operation of hydro generating facilities. Auxiliary plant systems typically include ancillary equipment such as pumps, valves, seals and screens, motors, waterwheels and generators.

Competency in this unit requires the ability to plan and prepare work, operate, test, analyse and report on hydroelectric generating plant and auxiliary equipment. Individuals will, in general, work under supervision, in a power generation facility as an operator.

Power generation plant operators are typically 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.

Note: Workplace practice

The application of the skills and knowledge described in this unit may require a licence or training permit to practice in the workplace where work is carried out on gas and electrical installations. Additional conditions may apply under state and territory legislative and regulatory licensing requirements.

Pre-requisite Unit

There are no prerequisite units.

Competency Field

Operations

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Plan and prepare work

- 1.1** Work, Health and Safety(WHS)/Occupational Health and Safety (OHS) regulations, legislative requirements, industry standards, codes of practice, manufacturers' specifications, environmental obligations and workplace procedures are applied and monitored
- 1.2** Work, hydroelectric generating plant and type of start requirements are identified from appropriate personnel and documentation, in accordance with workplace procedures
- 1.3** Turbine running-up and loading schedules are ascertained from relevant documentation, in accordance with workplace procedures and site requirements
- 1.4** Hydroelectric generating plant and auxiliary equipment inspections, preoperational tests and field preparation for service are carried out, in accordance with manufacturers' recommendations and workplace procedures
- 1.5** Hydroelectric generating plant and auxiliary equipment operational prerequisites are established, in accordance with manufacturers' recommendations and workplace procedures
- 1.6** Sequence for recommissioning hydroelectric generating plant and auxiliary equipment is determined, in accordance with workplace procedures and site requirements
- 1.7** Work is sequenced and prioritised, in accordance with workplace procedures and site requirements

2 Operate and monitor hydroelectric generating plant

- 2.1** Hydroelectric generating plant is operated, in accordance with workplace procedures and manufacturers' recommendations
- 2.2** Key indicator limits are maintained, in accordance with manufacturers' specifications and workplace procedures and site requirements

- 2.3 Auxiliary equipment is operated, in accordance with workplace procedures and manufacturers' recommendations
 - 2.4 Hydroelectric generating plant and auxiliary equipment is monitored, in accordance with workplace procedures, to detect deviations from normal operating conditions
 - 2.5 Hydroelectric generating plant and auxiliary equipment is operated, in accordance with workplace procedures and legislative requirements to gain maximum efficiency of energy conversion and to meet active and reactive despatch power outputs
 - 2.6 Corrective actions are taken to rectify any abnormalities, in accordance with manufacturers' recommendations and workplace procedures
- 3 **Test hydroelectric generating plant and auxiliary equipment**
 - 3.1 Tests on hydroelectric generating plant and equipment are performed, in accordance with workplace procedures
 - 3.2 Hydroelectric generating plant and equipment is observed for correct operational response, in accordance with workplace procedures
 - 3.3 Hydroelectric generating plant and equipment is returned to required operational status on completion of testing, in accordance with workplace procedures
- 4 **Analyse hydroelectric generating plant and auxiliary equipment faults**
 - 4.1 Causes of abnormal operating conditions are identified by analysing technical and operational information, in accordance with workplace procedures
 - 4.2 Hydroelectric generating plant integrity and personnel safety is maintained, in accordance workplace procedures and through consultation with appropriate personnel, technical and operational documentation
 - 4.3 Appropriate personnel are notified, in accordance with workplace procedures, when defects are detected
- 5 **Complete documentation**
 - 5.1 Equipment problems, movements and status are reported, in accordance with workplace procedures
 - 5.2 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 Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPOPS343B Operate hydro-electric generating plant and auxiliary equipment.

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 UEPOPS343 Operate hydroelectric generating plant and auxiliary equipment

Modification History

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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, performance criteria and range of conditions on at least two separate occasions and includes:

- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) legislated requirements including:
 - emergency procedures
 - risk control measures
 - safe working practices
- communicating with personnel
- completing workplace documentation
- implementing legislation, industry standards, codes of practice and regulations
- inspecting and monitoring hydroelectric generating plant and auxiliary equipment
- interpreting manufacturers' specifications and manuals
- operating hydroelectric generating plant and auxiliary equipment
- organising resources
- planning hydroelectric generating plant and auxiliary equipment work
- recognising and responding to abnormal hydroelectric generating plant and auxiliary equipment operating conditions using diagnostic and data analysis techniques
- reporting on hydroelectric generating plant and auxiliary equipment status
- testing hydroelectric generating plant and auxiliary equipment operationally using testing and measurement instruments to identify faults and abnormalities
- 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, performance criteria and range of conditions and include knowledge of:

- hydroelectric generating plant and auxiliary equipment, its location and operating parameters
- manufacturers' specifications and manuals
- permit to work system

- typical arrangements of power generation plant
- WHS/OHS legislated requirements including:
 - emergency procedures
 - risk control measures
 - safe working practices
- workplace policies and procedures
- workplace documentation hydroelectric generating plant and auxiliary equipment operation and status

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

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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.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

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 currently used in industry
- applicable documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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