



Australian Government

UEPOPS360 Operate and monitor a hydro turbine

Release: 1

UEPOPS360 Operate and monitor a hydro turbine

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, inspect and monitor in-service hydro turbines. Turbines are a basic component in most methods of generating electricity in hydro generation power facilities.

Competency in this unit requires the ability to plan work, operate hydro turbine plant, test hydro turbine plant, analyse hydro turbine plant faults, monitor and inspect hydro turbine plant and the completion of all documentation. 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 prerequisites.

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 work

- 1.1** Safety issues related to operating and monitoring hydro turbine plant are identified, in accordance with workplace procedures and Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) regulations and legislative requirements
- 1.2** Work tasks and hydro turbine plant requirements are identified from appropriate personnel and documentation, in accordance with workplace procedures
- 1.3** Hydro turbine run up and loading schedule are ascertained from relevant documentation, in accordance with workplace procedures and site requirements
- 1.4** Inspection, preoperational tests and field preparations for hydro turbine plant service are carried out, in accordance with workplace procedures and manufacturers' recommendations
- 1.5** Hydro turbine plant operational prerequisites are established, in accordance with workplace procedures and manufacturers' recommendations
- 1.6** Sequence for recommissioning of hydro turbine plant is determined, in accordance with workplace procedures and site requirements

2 Operate hydro turbine plant

- 2.1** Output is adjusted to achieve required hydro turbine operating conditions and demand, in accordance with workplace procedures and operational requirements
- 2.2** Hydro turbine plant is operated within limits of its' design, in accordance with workplace procedures
- 2.3** Hydro turbine plant is monitored and observed, in accordance with workplace procedures, to detect deviations from required operating conditions
- 2.4** Corrective actions are taken to rectify hydro turbine abnormalities, in accordance with workplace procedures and manufacturers' recommendations

3 Test hydro turbine plant operation

- 3.1** Operational tests are performed, in accordance with workplace procedures
- 3.2** Hydro turbine plant is observed for correct operational

		response, in accordance with workplace procedures
	3.3	Corrective action is taken, in accordance with workplace procedures, when response does not meet with documentation, hydro turbine plant integrity or personnel safety requirements
	3.4	Hydro turbine plant is returned to required safe operational status upon completion of testing, in accordance with workplace procedures
4 Analyse hydro turbine plant faults	4.1	Cause of abnormal hydro turbine plant operating conditions are identified, in accordance with workplace procedures, and by analysing technical and operational information
	4.2	Actions necessary to rectify faults are correctly determined, in accordance with workplace procedures
	4.3	Hydro turbine plant integrity and personnel safety is maintained, in accordance with workplace procedures, and in consultation with appropriate personnel and technical and operational documentation
5 Monitor and inspect hydro turbine plant	5.1	Hydro turbine plant to be monitored and inspected is physically identified, in accordance with workplace procedures
	5.2	Hydro turbine plant is monitored and inspected, in accordance with workplace procedures, for normal operation or to detect deviations
	5.3	Corrective action is taken, in accordance with workplace procedures
	5.4	Appropriate personnel are notified, in accordance with workplace procedures, when defects are detected
6 Complete documentation	6.1	Hydro turbine plant problems, movements, 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 Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPOPS360A Operate and monitor a hydro turbine.

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 UEPOPS360 Operate and monitor a hydro turbine

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:

- analysing hydro turbine plant faults using data analysis techniques and tools
- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements including:
 - emergency procedures
 - risk control measures
 - safe working practices
- communicating with personnel
- completing documentation using recording procedures
- coordinating remote operation of equipment to maintain hydro turbine plant integrity
- identifying hydro turbine plant status
- monitoring and inspecting hydro turbine plant operation
- operating hydro turbine unit and equipment under the influence of high water pressures or flows
- organising resources
- preparing and planning work
- recognising and responding to abnormal hydro turbine plant operating conditions
- testing hydro turbine plant operationally using diagnostic and testing techniques
- using permit to work system
- working with hydro turbine plant and equipment

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 includes knowledge of:

- hydro turbine plant and equipment, its location and operating parameters inclusive of the influence of high water pressure and/or flows
- hydro turbine plant status

- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- permit to work system
- typical arrangements of hydro power production plant
- WHS/OHS legislated requirements including:
 - emergency procedures
 - risk control measures
 - safe working practices
- workplace documentation
- workplace policies and procedures

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.

Links

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