



Australian Government

UEPOPS444 Start and run-up a hydro turbine

Release: 1

UEPOPS444 Start and run-up 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 conduct safe hydro turbine run-ups to a stable operating condition.

Run up of a hydro turbine will involve the operator making a sequence of checks prior to and during start up. This ensures that loading the turbine is completed in a safe and consistent manner.

Competency in this unit requires the ability plan and prepare hydro turbine, start and run-up hydro turbine, test and analyse hydro turbine system faults and complete 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 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 Safety issues are identified, in accordance with workplace procedures, Work Health and Safety (WHS)/Occupational Health and Safety (OHS) regulations and legislative requirements
- 1.2 Work requirements are identified from relevant personnel and documentation, in accordance with workplace procedures
- 1.3 Preoperational checks are carried out on hydro turbine plant, in accordance with manufacturers' recommendations, workplace procedures and site requirements
- 1.4 Turbine running up and loading schedule are ascertained from relevant documentation, in accordance with workplace procedures

2 Run-up hydro turbine

- 2.1 Hydro turbine and alternator auxiliary systems are started up and hydro turbine is run up, in accordance with manufacturers' specifications and workplace procedures
- 2.2 Hydro turbine is monitored and observed to detect deviations from normal run up operating conditions
- 2.3 Corrective actions are taken to rectify hydro turbine abnormalities, in accordance with manufacturers' recommendations and workplace procedures
- 2.4 Alternator is synchronised and connected to electrical system, in accordance with workplace procedures and manufacturers' recommendations
- 2.5 Alternator is loaded, in accordance with workplace procedures, manufacturers' recommendations and regulators requirements

3 Test hydro turbine plant operation

- 3.1 Tests are performed, in accordance with workplace procedures
- 3.2 Power generation system and hydro turbine plant are observed for correct operational response, in accordance

- with workplace procedures
- 4 Analyse and report system faults**
- 4.1** Causes of abnormal hydro turbine plant operating conditions are identified, in accordance with workplace procedures by analysing technical and operational information
- 4.2** Corrective action is taken, in accordance with workplace procedures
- 5 Complete documentation**
- 5.1** Hydro turbine plant 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 UEPOPS444A Start and run-up 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 UEPOPS444 Start and run-up a hydro turbine

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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
- identifying hydro turbine plant status
- implementing legislation, industry standards, codes of practices and regulations
- organising resources
- planning and preparing hydro turbine plant and equipment start and run up operations
- recognising and responding to abnormal plant operating conditions
- testing hydro turbine plant operation using diagnostic and data analysis techniques and tools to determine faults
- using recording procedures to complete documentation monitoring and operating hydro turbine plant and equipment
- 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 includes knowledge of:

- hydro turbine system components and their interaction
- legislation, industry standards, codes of practices and regulations
- manufacturers' specifications and manuals
- operational processes of hydro turbine
- permit to work system
- supervision and control system processes of hydro turbine

- typical arrangements for power generation plant
- WHS/OHS legislation 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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