



Australian Government

UEPOPS407 Start and run up gas turbine

Release: 1

UEPOPS407 Start and run up gas 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 for the purging, ignition and establishment of combustion and run-up of a gas turbine to operational and synchronous speed.

A gas turbine may be operated as an individual unit on open cycle or as a component of a combined cycle plant consisting of a gas turbine, heat recovery steam generator and steam turbine.

Competency in this unit requires the ability to plan and prepare work, conduct gas turbine start and run up, test gas turbine plant, identify and respond to gas turbine plant operation 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 gas turbine start and run up work

- 1.1** Safety issues are identified in accordance with workplace procedures, Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) regulations and site requirements
- 1.2** Work requirements are identified from appropriate personnel and documentation, in accordance with workplace procedures
- 1.3** Preoperational checks are carried out on gas turbine plant, in accordance with manufacturers' recommendations and workplace procedures

2 Conduct gas turbine start and run up

- 2.1** Preoperational conditions for gas turbine plant are established, in accordance with workplace procedures and site requirements
- 2.2** Preoperational conditions of the Heat Recovery Steam Generator (HRSG), associated steam mains and steam turbine are established when gas turbine is a component of a combined unit, in accordance with workplace procedures
- 2.3** Starting procedures and correct purge, ignition and run-up sequence are commenced and observed, in accordance with workplace
- 2.4** Minimum operation of gas turbine is established and supported, in accordance with workplace procedures and manufacturers' recommendations
- 2.5** Monitoring and control of HRSG drum level, feedwater flow, steam and metal temperature rates of rise, steam pressure rate of rise, steam flow and drainage are carried out where gas turbine is a component of a combined cycle unit, in accordance with workplace procedures
- 2.6** Gas turbine exhaust temperature and flow to HRSG and gas turbine power output are monitored and adjusted to achieve required steam conditions, in accordance with workplace procedures

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| | 2.7 | Generating plant is operated within limits of its' design, in accordance with workplace procedures |
| | 2.8 | Generating plant is monitored and observed, in accordance with workplace procedures, to detect deviations from required operating conditions |
| | 2.9 | Corrective action is taken to rectify gas turbine abnormalities, in accordance with manufacturers' recommendations and workplace procedures |
| 3 Test gas turbine plant operation | 3.1 | Tests are performed, in accordance with workplace procedures |
| | 3.2 | Power generation system and gas turbine plant is observed, in accordance with workplace procedures, for correct operational response |
| | 3.3 | Corrective action is taken, in accordance with workplace procedures, when response does not meet documentation, plant integrity or personnel safety requirements |
| | 3.4 | Gas turbine plant is returned to required operational status upon completion of testing, in accordance with workplace procedures |
| 4 Identify, respond and report on gas turbine plant operation and anomalies | 4.1 | Causes of abnormal gas 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 |
| | 4.3 | Gas turbine plant integrity and personnel safety is maintained, in accordance with workplace procedures, through consultation with appropriate personnel and technical and operational documentation |
| | 4.4 | Appropriate personnel are notified, in accordance with workplace procedures, when defects are detected |
| 5 Complete documentation | 5.1 | Gas turbine plant problems, movements, and status 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 UEPOPS407B Start and run up a gas 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 UEPOPS407 Start and run up gas 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:

- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) legislation including:
 - emergency procedures
 - risk control measures
 - safe working practices
- communicating with personnel
- conducting gas turbine plant and equipment for start and run up operation
- identifying gas turbine plant status
- implementing legislation, industry standards, codes of practice and regulations
- monitoring and operating gas turbine plant and equipment
- organising resources
- planning gas turbine work
- recognising and responding to abnormal gas turbine plant operating conditions
- starting, running up and operating gas turbine and associated plant and equipment
- testing gas turbine plant operations using diagnostic and data analysis techniques and tools to determine faults
- using recording procedures to complete documentation
- 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:

- gas turbine critical operating parameters
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- permit to work system

- safety precautions associated with a gas turbine start up
- sequence of gas turbine operations
- techniques for operation of a gas turbine and associated plant and equipment
- typical arrangements of power generation plant
- Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) legislation including:
 - risk control measures
 - emergency procedures
 - safe working practices
- workplace policies and procedures
- workplace documentation

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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