



Australian Government

UEPOPS071 Operate and monitor a heat recovery steam generator unit

Release: 1

UEPOPS071 Operate and monitor a heat recovery steam generator unit

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 an in-service heat recovery steam generator (HRSG). Operation of the HRSG, with or without supplementary firing, will be required through the full range of output, up to and including the maximum continuous rating.

A HRSG is a heat exchanger that retrieves heat from hot gas streams which is then supplied to steam turbines to generate additional electrical power.

Competency in this unit requires the ability to plan work, carry out operation of HRSG system, test HRSG operation, analyse HRSG system faults, inspect and monitor HRSG system 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

UEPOPS101 Operate and monitor HRSG hot gas control system

UEPOPS138 Start and run up a gas turbine

UEPOPS141 Start up a heat recovery steam generator unit

Competency Field

Operations

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

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, 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 Operational checks are carried out on HRSG plant in accordance with manufacturers' recommendations and specifications, and workplace procedures

2 Operate HRSG plant

- 2.1 Gas turbine exhaust flow and power output are adjusted to achieve steam flow conditions in accordance with workplace procedures
- 2.2 Supplementary HRSG firing system is placed into an out-of-service to maintain design steam flow and conditions in accordance with workplace procedures
- 2.3 Monitoring and control of HRSG drum level, feedwater flow, steam temperature, pressure and flow are carried out in accordance with manufacturers' recommendations and specifications, and workplace procedures
- 2.4 HRSG plant is operated within limits of design in accordance with workplace procedures
- 2.5 Corrective action is taken to rectify HRSG abnormalities in accordance with manufacturers' recommendations and specifications, and workplace procedures

3 Monitor and analyse HRSG plant

- 3.1 HRSG plant to be monitored is identified in accordance with workplace procedures
- 3.2 HRSG plant is monitored for normal operation and to detect deviations from required operating conditions in accordance with workplace procedures

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| | 3.3 | HSRG plant integrity and personnel safety is maintained in consultation with relevant personnel and technical and operational documentation in accordance with workplace procedures |
| | 3.4 | Relevant personnel are notified when defects are detected in accordance with workplace procedures |
| | 3.5 | Causes of abnormal HRSR plant operating conditions are identified by analysing relevant technical and operational information in accordance with workplace procedures, |
| 4 Test HSRG plant operation | 4.1 | Operational tests are performed in accordance with workplace procedures |
| | 4.2 | HSRG plant is observed for correct operational response in accordance with workplace procedures |
| | 4.3 | HSRG plant is returned to required operational status upon completion of testing in accordance with workplace procedures |
| 5 Complete documentation | 5.1 | HSRG 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 UEP Electricity Supply Industry - Generation Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPOPS433 Operate and monitor a heat recovery steam generator unit.

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 UEPOPS071 Operate and monitor a heat recovery steam generator unit

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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 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
- identifying heat recovery steam generator (HRSG) plant status
- implementing regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- interpreting manuals
- operating and monitoring HRSG plant and equipment
- organising resources
- preparing HRSG plant and equipment for operation
- recognising and responding to abnormal HRSG plant operating conditions
- testing plant operation using diagnostic and testing techniques
- 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
- HRSG plant and equipment, location and operating parameters
- manuals
- operation of HRSG plant and equipment
- operational testing of HRSG plant, including HRSG efficiency

- permit to work system
- regulations, legislative requirements, codes of practice, manufacturers' recommendations and specifications, and environmental requirements
- WHS/OHS requirements, including:
 - emergency procedures
 - 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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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>