



Australian Government

UEPOPS433 Operate and monitor a heat recovery steam generator unit

Release: 1

UEPOPS433 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 Generation Training Package.

Application

This unit involves the skills and knowledge required to operate an in-service Heat Recover 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 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

UEPOPS333 Operate and monitor HRSG hot gas control system

UEPOPS407 Start and run up a gas turbine

UEPOPS433 Start up a heat recovery steam generator unit

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 related to operating and monitoring Heat Recovery Steam Generator (HRSG) 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 requirements are identified, in accordance with workplace procedures, from relevant personnel and documentation

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

2 Operate HRSG plant

2.1 Gas turbine exhaust flow and power output are adjusted, in accordance with workplace procedures and operating requirements, to achieve steam flow conditions

2.2 Supplementary HRSG firing system, is placed into and out of service, as required, in accordance with workplace procedures, to maintain design steam flow and conditions

2.3 Monitoring and control of HRSG drum level, feedwater flow, steam temperature, pressure and flow are carried out, in accordance with workplace procedures, manufacturers' recommendations and site requirements

2.4 HRSG plant is operated within limits of its' design, and site requirements, in accordance with workplace procedures

2.5 Corrective action is taken to rectify HRSG abnormalities, in accordance with workplace procedures and manufacturers' recommendations procedures

3 Monitor HRSG plant

3.1 HRSG plant to be monitored is identified in accordance

- with workplace procedures
- 3.2** HSRG plant is monitored, in accordance with workplace procedures, for normal operation and/or to detect deviations from required operating conditions
 - 3.3** HSRG plant integrity and personnel safety is maintained, in accordance with workplace procedures, and in consultation with appropriate personnel and technical and operational documentation
 - 3.4** Appropriate personnel are notified, in accordance with workplace procedures, when defects are detected
- 4 Analyse HSRG faults**
- 4.1** Causes of abnormal HSRG plant operating conditions are identified, in accordance with workplace procedures, and by analysing relevant technical and operational information
 - 4.2** Corrective action is taken, in accordance with workplace procedures
- 5 Test HSRG plant operation**
- 5.1** Operational tests are performed, in accordance with workplace procedures
 - 5.2** HSRG plant is observed for correct operational response, in accordance with workplace procedures
 - 5.3** HSRG plant is returned to required operational status upon completion of testing, in accordance with workplace procedures
 - 5.4** Corrective action is taken, in accordance with workplace procedures, when response does not meet with documentation, HSRG plant integrity or personnel safety requirements
- 6 Complete documentation**
- 6.1** HSRG 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 UEPOPS433B 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 UEPOPS433 Operate and monitor a heat recovery steam generator unit

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 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 HRSG plant status
- implementing legislation, industry standards, codes of practice and regulations
- interpreting manufacturers' specifications and manuals
- operating and monitoring Heat Recovery Steam Generator (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 test 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, performance criteria and range of conditions and includes knowledge of:

- HRSG plant and equipment, its location and operating parameters
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- operation of HRSG plant and equipment
- operational testing of HRSG plant including HRSG efficiency

- permit to work system
- typical arrangements of 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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