



Australian Government

UEPOPS248 Operate and monitor an internal combustion dual fuel reciprocating engine

Release: 1

UEPOPS248 Operate and monitor an internal combustion dual fuel reciprocating engine

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 internal combustion dual fuel reciprocating engines.

Typically, internal combustion dual fuel reciprocating engines are fed with fossil fuels such as petrol, gas, diesel or oil. Internal combustion dual fuel reciprocating engines in the form of combustion turbines drive the largest electric generators.

Competency in this unit requires the ability to plan work, operate internal combustion dual fuel reciprocating engine plant, change fuel type during operation, test internal combustion dual fuel reciprocating engine plant operations, analyse internal combustion dual fuel reciprocating engine plant faults, monitor and inspect internal combustion dual fuel reciprocating engine plant and the completion of all documentation. Individuals will, in general, work under supervision, in a power generating 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 related to operating and monitoring internal combustion dual fuel reciprocating engines 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 appropriate personnel and documentation
- 1.3 Documentation to determine internal combustion dual fuel reciprocating engine plant status is assessed and evaluated, in accordance with workplace procedures
- 1.4 Inspection and field preparations for internal combustion dual fuel reciprocating engine plant service are carried out, in accordance with workplace procedures and manufacturers' recommendations
- 1.5 Internal combustion dual fuel reciprocating engine plant operational prerequisites are established, in accordance with workplace procedures and manufacturers' recommendations
- 1.6 Sequence for recommissioning of internal combustion dual fuel reciprocating engine plant is determined, in accordance with workplace procedures and site requirements

2 Operate internal combustion dual fuel reciprocating engine plant

- 2.1 Internal combustion dual fuel reciprocating engine plant is operated, in accordance with workplace procedures and manufacturers' operating recommendations
- 2.2 Internal combustion dual fuel reciprocating engine plant is monitored and observed, in accordance with workplace procedures, to detect deviations from normal

		operating conditions
	2.3	Corrective actions are taken to rectify internal combustion dual fuel reciprocating engine plant abnormalities, in accordance with workplace procedures and manufacturers' recommendations
3 Change fuel type during operation	3.1	Changeover of fuel type is monitored and observed, in accordance with workplace procedures, to detect deviations from expected results
	3.2	Corrective actions are taken, in accordance with workplace procedures and manufacturers' recommendations
4 Test internal combustion dual fuel reciprocating engine plant operation	4.1	Operational tests are performed, in accordance with workplace procedures
	4.2	Internal combustion dual fuel reciprocating engine plant is observed, in accordance with workplace procedures, for correct operational response
	4.3	Corrective action is taken, in accordance with workplace procedures, when response does not meet with documentation, plant integrity or personnel safety requirements
	4.4	Appropriate personnel are notified, in accordance with workplace procedures, when defects are detected
5 Analyse internal combustion dual fuel reciprocating engine plant faults	5.1	Cause of abnormal internal combustion dual fuel reciprocating engine plant operating conditions are identified, in accordance with workplace procedures, by analysing technical and operational information
	5.2	Corrective action is taken, in accordance with workplace procedures
	5.3	Internal combustion dual fuel reciprocating engine plant integrity and personnel safety is maintained, in accordance with workplace procedures, and in consultation with appropriate personnel and technical and operational documentation
6 Monitor and inspect internal combustion dual fuel reciprocating engine plant	6.1	Internal combustion dual fuel reciprocating engine plant to be monitored and inspected is physically identified, in accordance with workplace procedures

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| | 6.2 | Internal combustion dual fuel reciprocating engine plant is monitored and inspected for normal operation or to detect deviations, in accordance with workplace procedures |
| | 6.3 | Corrective action is taken, in accordance with workplace procedures |
| | 6.4 | Appropriate personnel are notified, in accordance with workplace procedures, when defects are detected |
| 7 Complete documentation | 7.1 | Internal combustion dual fuel reciprocating engine plant problems, abnormalities and status are reported in accordance with workplace procedures |
| | 7.2 | 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 UEPOPS248B Operate and monitor an internal combustion dual fuel reciprocating engine.

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 UEPOPS248 Operate and monitor an internal combustion dual fuel reciprocating engine

Modification History

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

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 internal combustion dual reciprocating engine plant faults using data analysis techniques and tools
- applying dual fuel engine operational knowledge
- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements including:
 - emergency procedures
 - risk control measures
 - safe working practices
- changing fuel type during operation
- communicating with personnel
- completing documentation
- complying with legislation, industry standards, codes of practice and regulations
- identifying internal combustion dual reciprocating engine plant status
- interpreting manufacturers' manuals and specifications
- monitoring and inspecting internal combustion dual reciprocating engine plant operations
- operating dual fuel engines
- preparing and planning work
- preparing internal combustion dual reciprocating engine plant and/or equipment for operation
- recognising and responding to abnormal internal combustion dual reciprocating engine plant operating conditions
- testing internal combustion dual reciprocating engine plant operationally using diagnostic and test techniques
- utilising fuel changeover equipment and/or systems
- 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:

- internal combustion dual reciprocating engine plant and equipment, its location and operating parameters
- internal combustion dual reciprocating engine plant status including fuel changeover equipment
- internal combustion reciprocating engine types and characteristics
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- permit to work system
- typical arrangements of power production plant
- WHS/OHS legislated requirements including:
 - emergency procedures
 - risk control measures
 - safe work 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.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

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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