



Australian Government

PMAOPS332 Generate electrical power

Release: 1

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Modification History

Release 1. Unit code and changed. Performance Criteria changed. Range of Conditions removed. Assessment Requirements changed. Supersedes and is equivalent to PMAOPS325 Generate electrical power.

Application

This unit describes the skills and knowledge required to operate a power generation system. This unit is expected to apply in offshore, remote or other situations where the site/plant generates electrical power.

This unit applies to autonomous operators who are required to demonstrate a significant understanding of the process and the equipment operation in a plant with local control, or in liaison with the control-room operator in a plant with a centralised control panel. In the case of a large, complex plant, the operations technician would be part of a team during startup and shutdown procedures.

This unit applies to an individual working alone or as part of a team or group, and working in liaison with other shift team members and the control-room operator.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

Nil

Competency Field

Operations

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Operate power generation system according to procedures	1.1 Receive and give shift handover 1.2 Communicate with personnel to identify and coordinate work requirements 1.3 Identify, control and report hazards 1.4 Check for recent work undertaken on power generation system and

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	address outstanding and incomplete work 1.5 Check operational status of equipment 1.6 Communicate startup of power generation to personnel 1.7 Select prime mover to be used 1.8 Select system for generation process appropriate to voltage systems and requirements 1.9 Conduct pre-start checks 1.10 Start prime mover for the generation system 1.11 Synchronise all equipment to transfer power safely into the system
2. Monitor power generation equipment according to procedures	2.1 Balance loads and power factors 2.2 Monitor and adjust loads to ensure that all machine loads are maintained within safe working conditions 2.3 Distribute energy to the generation system in a safe and efficient manner, ensuring that the status of all equipment is monitored 2.4 Rebalance loads to maximise production efficiency
3. Identify and respond to abnormal situations during operation	3.1 Monitor generation system frequently and critically throughout shift using own senses, and measured and indicated data 3.2 Monitor field data and instrumentation to ensure that product remains on specification 3.3 Identify impacts of changes upstream and downstream 3.4 Identify actual and developing situations that may require action 3.5 Take action to remedy abnormal situations according to operating procedures 3.6 Complete required documents outlining abnormal situation management and corrective action taken
4. Shut down and prepare power generation system for maintenance	4.1 Prepare power generation system to be shut down according to operating procedures 4.2 Complete pre-shutdown checks according to operating procedures 4.3 Shut down power generation system according to operating procedures 4.4 Identify, control and report shutdown hazards 4.5 Monitor shutdown and identify abnormal situations which may

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	require action 4.6 Take action to remedy abnormal situations according to operating procedures 4.7 Shut down and changeover duty and standby equipment according to operating procedures 4.8 Isolate power generation system from energy sources
5. Prepare and start up power generation system	5.1 De-isolate and prepare power generation system to be returned to standby or service 5.2 Complete pre-start checks according to operating procedures 5.3 Startup power generation system according to operating procedures 5.4 Identify, control and report start-up hazards 5.5 Monitor startup and identify abnormal situations that may require action 5.6 Take action to remedy abnormal situations according to operating procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

- Learning skills to follow instructions, monitor process and select appropriate procedure.
- Reading skills to follow written procedures and documentation.
- Writing skills to complete workplace documentation.
- Oral communication skills to liaise and coordinate with team members and the control-room operator.
- Numeracy skills to monitor field data, instrumentation and process parameters.

Other foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMAOPS325 Generate electrical power.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>

Assessment Requirements for PMAOPS332 Generate electrical power

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit:

- at least 2 times, each in a separate work context, for an offshore, remote or other facility that generates electrical power.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- all items on a schematic of the production unit, including:
 - principles of operation of plant and equipment, including cathodic protection techniques, switching techniques, earthing techniques, voltage systems, electrical generation and distribution theory, and theory of synchronisation
 - interactions between plant item and processes
 - operating parameters and integrity limits, and product specifications and tolerances including temperature
 - impact of external factors (including variations in weather and feed)
 - procedures for starting, stopping, operating, controlling and isolating the plant
 - emergency shutdown procedures
 - functions of major components and troubleshooting techniques
- physics to the level of being able to provide an overview of the science of the electrical power generation process
- electrical power generation abnormal situations and required actions, including:
 - variation or loss of fuel
 - variation or loss of energy supply
 - control equipment failure
 - power demand changes
 - change in atmospheric condition (rain, temperature, wind, lightning)
 - emergency situations
- hierarchy of control
- hazards associated with chemical substances, including polychlorinated biphenyl (PCBs)
- electrical generation hazards:

- possible causes
- potential consequences
- appropriate risk controls.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - power generation plant
 - operating procedures
- abnormal situations must be relevant to a power generation system.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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