



Australian Government

PMAOPS353 Operate and troubleshoot heating, ventilation and air conditioning systems

Release: 1

PMAOPS353 Operate and troubleshoot heating, ventilation and air conditioning systems

Modification History

Release 1. This version was released with PMA Chemical, Hydrocarbons and Refining Training Package, Release 2.0.

Application

This unit describes the skills and knowledge required to operate and troubleshoot heating, ventilation and air conditioning (HVAC) systems.

This unit applies to autonomous operators who are required to demonstrate an 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.

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, as appropriate. In the case of a large, complex plant, the operations technician would be part of a team during startup and shutdown activities.

This does not include specific electrical skills and knowledge that are managed under State and Federal electrical legislation and regulation.

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 HVAC systems 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 system hazards

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.4 Check for recent work undertaken on system and address outstanding and incomplete work 1.5 Perform routine checks, and complete logs and documentation 1.6 Adjust system according to operational parameters
2. Identify and respond to abnormal situations during operation	2.1 Monitor field system, data and instrumentation to ensure system operates according to specification 2.2 Identify impacts of changes to system operation 2.3 Identify actual and developing situations that may require action 2.4 Take action to remedy abnormal situations 2.5 Complete required documents outlining abnormal situation management and corrective action taken
3. Shut down and prepare HVAC systems for maintenance	3.1 Shut down system according to operating procedures 3.2 Identify, control and report shutdown hazards 3.3 Monitor shutdown and identify abnormal situations that may require action 3.4 Take action to remedy abnormal situations according to operating procedures 3.5 Shut down and changeover duty and standby equipment according to operating procedures 3.6 Isolate system from energy sources
4. Prepare and start up HVAC systems	4.1 Check for recent work undertaken on system and address outstanding and incomplete work 4.2 De-isolate and prepare system to be returned to standby or service 4.3 Complete pre-start checks according to operating procedures 4.4 Start up system according to operating procedures 4.5 Identify, control and report startup hazards 4.6 Monitor startup and identify abnormal situations that may require action 4.7 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.
- Numeracy skills to monitor field data, instrumentation and process parameters.
- Oral communication skills to liaise and coordinate with team members and control-room operator.
- Reading skills to follow written procedures and documentation.
- Writing skills to complete workplace documentation.

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

Unit Mapping Information

Release 1. New unit.

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 PMAOPS353 Operate and troubleshoot heating, ventilation and air conditioning systems

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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.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- all items on HVAC systems including:
 - HVAC system items, functions and troubleshooting techniques
 - principles of operation
 - operating parameters and integrity limits, and product specifications and tolerances
 - operating procedures and correct methods of starting, stopping, operating, controlling and isolating and de-isolating the systems
 - emergency shutdown procedures
 - HVAC system control philosophies and strategies
 - interactions between plant items and HVAC systems
- basic physics, and chemistry to the level of being able to provide an overview of the science of HVAC systems
- HVAC system abnormal situations and required action, including but not limited to:
 - unstable control of pressure, temperature, level and flows
 - control equipment failure
 - system trips
 - change in atmospheric conditions (including rain, temperature, wind, lightning and calm weather)
 - analyser inaccuracy or malfunction
 - hierarchy of control
- HVAC system hazards:
 - possible causes
 - potential consequences
 - appropriate risk controls
 - reporting and escalation procedures.

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:
 - real industrial equipment located in either a live plant or a realistic simulated industrial environment
 - routine operating procedures.

Abnormal situations must include:

- industry incidents or events relevant to the operation of HVAC systems
- actions adhering to workplace policies and procedures.

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

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