



Australian Government

PMAOPS201 Operate fluid flow equipment

Release: 1

PMAOPS201 Operate fluid flow equipment

Modification History

Release 1. Supersedes and is equivalent to PMAOPS201B Operate fluid flow equipment

Application

This unit of competency covers the skills and knowledge required to operate pumps and valves and other fluid flow equipment in a processing plant.

This unit of competency applies to operators who are required to identify, operate, monitor and troubleshoot the pumps and valves and contribute to a safe working environment. It is typically performed by all operators in a processing plant.

This unit of competency applies to an individual who may work alone although under routine direction and supervision. They may work as part of a team or group and will work in liaison with other shift team members and the control room operator, as appropriate.

In a typical scenario, an operator uses a number of general purpose pumps, piping and valves to move liquids from a storage tank area into the processing plant, within and between plant units, to the finished goods tanks. The operator utilises in-line mixers, strainers and filters, valves, controls and meters to complete this work.

This competency covers all general duty pumps, their associated drivers (motors) and valves. The effect of pipe fittings on pump performance and problems/problem analysis is also included.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Operations

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 **Prepare for work** 1.1 Receive and give shift handover

- 1.2 Identify work requirements
 - 1.3 Identify and control hazards
 - 1.4 Coordinate with appropriate personnel
 - 1.5 Check for recent work undertaken on plant item
 - 1.6 Note any outstanding/incomplete work
 - 1.7 Check operational status of fluid flow equipment
- 2 **Operate pumps**
- 2.1 Identify the type of pump
 - 2.2 Start up and shut down pump as required
 - 2.3 Adjust flow and head/pressure as appropriate to type of pump
 - 2.4 Complete routine checks and reports and take appropriate action as required
- 3 **Operate pump drivers**
- 3.1 Monitor critical variables such as amps, temperature and vibration
 - 3.2 Keep critical variables in range
 - 3.3 Recognise trends/patterns which indicate a potential or actual problem with the pump driver
 - 3.4 Take action to ensure driver as required
- 4 **Operate valves**
- 4.1 Identify the type of valve
 - 4.2 Operate valve in a manner appropriate to the valve type
 - 4.3 Complete routine checks and reports and take appropriate action as required
- 5 **Recognise and take appropriate action on**
- 5.1 Monitor fluid flow system frequently and critically throughout shift using measured/indicated data and smell, sight, sound and feel as appropriate

abnormal fluid system situations	5.2	Identify impacts of any changes upstream and downstream	
	5.3	Recognise situations which may require action	
	5.4	Resolve routine problems	
	5.5	Take actions on other abnormal situations to make safe and have the situation resolved	
	6	Isolate and de-isolate equipment	6.1
		6.2	Start up/shut down/changeover fluid flow equipment according to the equipment type and duty in liaison with other personnel
		6.3	Isolate equipment
		6.4	Make safe for required work
		6.5	Check plant is ready to be returned to service
		6.6	De-isolate and prepare plant for return to service

Foundation Skills

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

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

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework

The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:

- legislative requirements, including work health and safety (WHS)
- industry codes of practice and guidelines

- environmental regulations and guidelines
- Australian and other standards
- licence and certification requirements

All operations to which this unit applies are subject to stringent health, safety and environment (HSE) requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

Procedures

All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or more of the following:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant

Equipment

Equipment includes one or more of the following:

- pumps (various types of centrifugal and positive displacement)
- valves, such as globe, needle, gate, butterfly, plug cock, wedge plug, ball cock, non-return, diaphragm, pneumatic globe and pneumatic butterfly)
- piping systems and components, including bends and elbows, tee pieces, expansion mechanisms, pipe joints, reducers, nipples, orifices, in-line mixers, filters and strainers, flexible hoses and couplings
- shaft seals, such as stuffing boxes, mechanical seals, fluid seals and labyrinth seals

Routine problems

Routine problems must be resolved by applying known solutions.

Routine problems are predictable and include one or more of the following:

- cavitation
- seal leaks

- head loss/low flow
- bearing problems

Known solutions are drawn from one or more of the following:

- procedures
- training
- remembered experience

Non-routine problems must be reported according to according to relevant procedures.

Responding to abnormal situations

Responding to abnormal situations includes the following:

- determining problems needing action
- determining possible fault causes
- rectifying problem using appropriate solution within area of responsibility
- following through items initiated until final resolution has occurred
- reporting problems outside area of responsibility to designated person

Operate

Operate is to monitor, adjust/change the plant item/unit/system to meet specifications, by one or more of the following:

- manually in the plant
- using local controller in the plant

Hazards

Hazards include one or more of the following:

- smoke, darkness and heat
- dust or other atmospheric hazards
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- structural collapse
- equipment failures
- industrial (machinery, equipment and product)
- equipment or product mass
- noise, rotational equipment or vibration
- plant services (steam, condensate and cooling water)
- limited head spaces or overhangs

- working at heights, in restricted or confined spaces, or in environments subjected to heat, noise, dusts or vapours or other atmospheric hazards
- flammability and explosivity
- hazardous products and materials
- unauthorised personnel
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- extreme weather
- other hazards that might arise

Start up/shut down as required

Start up/shut down as required includes the following:

- start up and shut down to/from normal operating conditions
- start up and shut down to/from isolated, cold or empty
- start up and shut down to/from other conditions/situations experienced on the plant

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMAOPS201B Operate fluid flow equipment

Links

Companion Volume implementation guides are found in VETNet -

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