



Australian Government

Department of Education, Employment and Workplace Relations

PMAOPS230A Monitor, operate, and maintain pipeline stations and equipment

Release: 1

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Modification History

Not applicable.

Unit Descriptor

In a typical scenario, an operator is responsible for the operation and monitoring of pipeline stations and associated equipment within the parameters established. The competence includes examining the station and its equipment for signs of damage and/or need of maintenance, maintaining general cleanliness and reporting against specific requirements.

Pipeline stations can include:

- maintenance bases

- compressor stations

- scraper stations

- inlet and delivery stations

- mainline block valve sites.

The operator would:

- identify and rectify operational problems

- monitor station operating parameters

- maintain station equipment.

Generally the operator would work on an individual basis and be expected to be capable of performing all parts of this unit, but may be part of a team. At all times they would be liaising and co-operating with other members of the team.

This unit does NOT require the operation of a central control panel, however, it can be applied to a pipeline control centre if applicable.

AS 2885 Part 3 forms the principle reference standard for this competency.

Prerequisites

This unit **hasno** prerequisites.

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Prerequisites

This unit **hasno** prerequisites.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

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Element	Performance Criteria
1 Plan and organise for activities	1.1 Review previous reports and check for outstanding work orders or notices. 1.2 Obtain tools, equipment and testing devices needed to carry out the work and check for correct operation and safety. 1.3 Check operational area to ensure that any potential hazards which may affect operation of the equipment is controlled or removed. 1.4 Conduct required safety checks and pre-start checks to determine or verify the operational condition and parameters of the equipment. 1.5 Seek status of the system through communication with pipeline control centre personnel prior to commencing start-up.

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| 2 | Start up and monitor the system | 2.1 Start up the system to procedures. |
| | | 2.2 Monitor and adjust systems to allow for the most efficient operation to procedures. |
| | | 2.3 Identify equipment faults through inspection and testing of the operational equipment. |
| | | 2.4 Monitor operating conditions of equipment through condition monitoring systems, gauge levels, temperatures and flow indicators in order to determine performance of equipment and system. |
| | | 2.5 Apply fault finding and troubleshooting techniques to operational systems/equipment to identify any repairs or maintenance needing to be undertaken. |
| | | 2.6 Monitor and convey information concerning the operation of the pipeline system to relevant personnel to ensure safe and efficient operation of the pipeline system. |
| | | 2.7 Select and apply emergency response in accordance with procedures to control the situation and prevent further risk of personal injury, or of product, equipment or environmental damage. |
| | | 2.8 Complete reports to procedures. |
| 3 | Shut down system/equipment | 3.1 Complete shutdown to procedures and conditions. |
| | | 3.2 Apply emergency shutdown procedures in the event of serious equipment failure or operational parameters being exceeded. |
| | | 3.3 Maintain records/reports to procedures. |
| 4 | Plan and prepare for minor maintenance | 4.1 Select and use all necessary and appropriate facilities, tools, test and measurement instruments, materials and components to allow the completion of the work. |
| | | 4.2 Make safe the facilities/equipment by ensuring it is safely isolated, depressurised, tagged and locked out and a permit to work is obtained as appropriate before allowing any repair or maintenance work to be undertaken. |
| | | 4.3 Identify equipment faults through inspection and |

- testing of the operational equipment to procedures.
- 4.4 Apply fault finding and troubleshooting techniques to operational systems/equipment in order to identify any repairs or maintenance which may need to be undertaken.
- 5 Perform routine maintenance
- 5.1 Adjust, calibrate and test equipment and devices to ensure they operate within specified ranges and maintain correct flow parameters to ensure product availability.
- 5.2 Select and interpret all necessary and appropriate plans, drawings and text in order to carry out servicing of equipment.
- 5.3 Isolate work area to enable repair to proceed to procedures.
- 5.4 Perform maintenance in accordance with acceptable standards of cleanliness and with a minimum of waste and rework.
- 6 Record and report results
- 6.1 Document and record maintenance results to procedures.
- 6.2 Notify work completion to procedures.
- 6.3 Cancel where appropriate permit to work and sign off at completion of repair.
- 7 Control hazards
- 7.1 Identify hazards in pipeline station work area.
- 7.2 Assess the risks arising from those hazards.
- 7.3 Implement measures to control those risks in line with procedures and duty of care.
- 8 Respond to plant problems
- 8.1 Monitor plant frequently and critically throughout shift using measured/indicated data and senses (sight, hearing, etc.) as appropriate.
- 8.2 Recognise operational problems.
- 8.3 Analyse cause of operational problems within scope of skill level.
- 8.4 Take timely and appropriate action to solve operational problems.

Required Skills and Knowledge

Not applicable.

Evidence Guide

Assessment context and methods

Assessment for this unit of competency will be on an operating pipeline. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation.

Simulation may be required to allow for timely assessment of parts of this unit of competency (e.g. elements 4 and 5). Simulation should be based on the actual plant and will include walk throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios, role plays and 3D virtual reality interactive systems. In the case of evacuation training or training for competencies practised in life threatening situations, simulation may be used for the bulk of the training.

This unit of competency requires an application of the knowledge contained in the use of the pipeline and its integral equipment, to the level needed to maintain control and recognise and resolve problems. This can be assessed through questioning and the use of what if scenarios both on the plant (during demonstration of normal operations and walk throughs of abnormal operations) and off the plant.

Critical aspects

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:
early warning signs of equipment/processes needing attention or with potential problems are recognised

the range of possible causes can be identified and analysed and the most likely cause determined

appropriate action is taken to ensure a timely return to full performance

obvious problems in related plant areas are recognised and an appropriate contribution made to their solution.

These aspects may be best assessed using a range of scenarios/case studies/what ifs as the stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

Resource implications

As a general rule assessment will require access to an operating pipeline system over an extended period of time, or a suitable method of gathering evidence of operating competence over a range of situations. A bank of scenarios/case studies/what ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Consider co-assessment with:

PMASUP236A - Operate vehicles in the field

PMAOPS221A - Operate and monitor prime movers

PMAOPS304A - Operate and monitor compressors

PMAOPS223A - Operate and monitor valve systems.

Essential knowledge

The knowledge referred to in the evidence guide for this unit includes:

operating principles of heaters, furnaces and exchangers

station instrumentation

condition monitoring equipment

station power supplies

operations of metering equipment

functions of process control equipment

principles behind gas analysis equipment

purpose of valves, actuators and flanges

layout of piping systems

sumps and drains

station pressure vessels/filtration equipment.

Competence also includes the ability to isolate the causes of problems to an item of equipment within the pipeline system and to distinguish between causes of problems/alarm/fault

indications such as:

process gas variations

instrument failure/wrong reading

electrical failure

mechanical failure

operational problems.

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Range Statement

Context

This unit of competency includes all items of equipment and unit operations which form part of the pipeline system.

For your plant this may include (select relevant items):

compressor systems and equipment including monitoring systems, anti surge systems, safety systems and compressor control systems
prime movers including turbine engines, reciprocating engines and electric motors
instrument and control systems
valve systems.

Typical problems for your plant may include:

gas/product leaks
incorrect valve positions
electrical problems
compressor or pump failure
out of current inspection status
gauge failure or hose rupture, leaks
instruments out of calibration
instruments and equipment requiring cleaning.

HSE

All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State 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.

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Unit Sector(s)

Not applicable.