



Australian Government

Department of Education, Employment and Workplace Relations

PMAOPS230B Monitor, operate and maintain pipeline stations and equipment

Release: 1

PMAOPS230B Monitor, operate and maintain pipeline stations and equipment

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	<p>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:</p> <ul style="list-style-type: none"> • maintenance bases • compressor stations • scraper stations • inlet and delivery stations • mainline block valve sites.
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Application of the Unit

Application of the unit	<p>The operator would:</p> <ul style="list-style-type: none"> • identify and rectify operational problems • monitor station operating parameters • maintain station equipment. <p>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 cooperating with other members of the team.</p> <p>This unit does not require the operation of a central control panel, however, it can be applied to a pipeline control centre if applicable.</p> <p>AS 2885 Part 3 forms the principle reference standard for this competency.</p>
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		
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Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work.	1.1. Identify work requirements 1.2. Identify and control hazards 1.3. Coordinate with appropriate personnel
2. Plan and organise for activities.	2.1. Review previous reports and check for outstanding work orders or notices 2.2. Obtain tools, equipment and testing devices needed to carry out the work and check for correct operation and safety 2.3. Check operational area to ensure that hazards are controlled 2.4. Conduct required safety checks and pre-start checks of the equipment 2.5. Determine status of the system through communication with relevant personnel prior to commencing start-up.
3. Start up/shut down the system.	3.1. Start up the system in accordance with procedures 3.2. Shutdown in accordance with procedures and conditions 3.3. Apply emergency shutdown procedures when appropriate 3.4. Maintain records/reports to procedures.
4. Monitor the system	4.1. Monitor operating conditions of equipment through condition monitoring systems, gauge levels, temperatures and flow indicators in order to determine performance of equipment and system 4.2. Adjust systems for the most efficient operation 4.3. Identify equipment faults through inspection and testing of the operational equipment 4.4. Take appropriate action 4.5. Communicate pipeline system information to relevant personnel 4.6. Select and apply emergency response when required
5. Isolate and de-isolate plant.	5.1. Isolate plant 5.2. Make safe for required work 5.3. Check plant is ready to be returned to service 5.4. Prepare plant for return to service.
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.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Competence 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.

Required knowledge

The knowledge referred to in the Evidence Guide for this unit includes:

- 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
- principles of operation of plant/equipment
- physics and chemistry relevant to the process unit and the materials processed
- process parameters and limits, eg temperature, pressure, flow, pH
- duty of care obligations
- hierarchy of control
- communication protocols, eg radio, phone, computer, paper, permissions/authorities
- routine problems, faults and their resolution
- relevant alarms and actions
- plant process idiosyncrasies
- all items on a schematic of the plant item and the function of each
- correct methods of starting, stopping, operating and controlling process
- corrective action appropriate to the problem cause
- function and troubleshooting of major components and their problems
- types and causes of problems within operator's scope of skill level and responsibility.

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Assessment of this unit should include demonstrated competence on actual plant/pipeline and equipment in a work environment. 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 assessment of parts of this unit. 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 for assessment and evidence required to demonstrate competency in this unit

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,

EVIDENCE GUIDE	
	incidents on similar plants around the world, hazard analysis activities and similar sources.
Context of and specific resources for assessment	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.
Method of assessment	In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Consider co-assessment with: <ul style="list-style-type: none"> • <i>PMAOPS236B Operate vehicles in the field</i> • <i>PMAOPS221B Operate and monitor prime movers</i> • <i>PMAOPS304B Operate and monitor compressors</i> • <i>PMAOPS223B Operate and monitor valve systems.</i>
Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

Range Statement

RANGE STATEMENT

The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the Performance Criteria, is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used.
Context	<p>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):</p> <ul style="list-style-type: none"> • 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	<p>Typical problems for your plant may include:</p> <ul style="list-style-type: none"> • 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.
Appropriate action	<p>Appropriate action includes:</p> <ul style="list-style-type: none"> • 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.
Procedures	<p>Procedures may be written, verbal, computer-based or in some other form. They include:</p> <ul style="list-style-type: none"> • all work instructions

RANGE STATEMENT	
	<ul style="list-style-type: none"> • standard operating procedures • formulas/recipes • batch sheets • temporary instructions • any similar instructions provided for the smooth running of the plant. <p>For the purposes of this Training Package, 'procedures' also includes good operating practice as may be defined by industry codes of practice (eg Responsible Care) and government regulations.</p>
Health, safety and environment (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.

Unit Sector(s)

Unit sector	Operational/technical
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		
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