



Australian Government

Department of Education, Employment and Workplace Relations

PMAOPS321B Undertake well management

Revision Number: 1

PMAOPS321B Undertake well management

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	In a typical scenario an operations technician operates, monitors and manages wells and ancillary equipment. The activity includes operating and monitoring the performance of well equipment, making adjustments to and reporting on product flows, identifying and reporting operational problems, being aware of and contributing to a safe working environment, and the safe and productive operation of the system.
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Application of the Unit

Application of the unit	<p>Well systems can include:</p> <ul style="list-style-type: none"> • onshore and offshore production facilities • oil or gas production sites. <p>Generally the operations technician would be part of a team during start up and shut down procedures and would be expected to be capable of demonstrating competence in all parts of this unit. At all times they would be liaising and cooperating with other members of the team.</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. Produce oil and gas.	1.1. Control and direct flows to meet demand requirements 1.2. Utilise process control instrumentation to produce oil/gas 1.3. Liaise with other services and contractors during the production phase 1.4. Collect, interpret, correlate and report or communicate selected data.
2. Conduct flow measurement.	2.1. Apply appropriate mathematical formulae and formats to determine product volumes 2.2. Collect and utilise appropriate production data to determine product flows 2.3. Analyse historical data and records to monitor and determine well performance 2.4. Calculate production figures and targets, and apply this data to all functions related to this competency 2.5. Take appropriate action.
3. Monitor well and associated production equipment.	3.1. Monitor operational condition and efficiencies of equipment 3.2. Implement corrosion control procedures for all equipment to maintain its operating integrity 3.3. Conduct inspections of instrumentation equipment 3.4. Take appropriate action 3.5. Liaise with maintenance operations to determine and prioritise any required maintenance.
4. Transfer product.	4.1. Separate products into their respective product groupings 4.2. Treat all excess separation process waste water, utilising the appropriate chemical and disposal techniques 4.3. Transfer product to appropriate location for future processing or sale 4.4. Maintain all well logs and records as required 4.5. Monitor transfer and take appropriate action.
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.

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 distinguish between causes of problems/alarms/fault indications such as:

- instrument failure malfunction
- electrical failure malfunction
- mechanical failure malfunction
- equipment design deficiencies
- change in product parameters (temperature, flows, pressure and levels)
- fouling or contamination
- corrosion
- quality measurement inaccuracy, eg from analyser or manual sampling deficiencies.

Required knowledge

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

- well design and construction
- fluid dynamics and statics
- natural gas and oil characteristics
- reservoir management and characteristics
- static electricity principles
- flange, pressure and temperature ratings
- corrosion control and chemical handling
- environmental aspects and conditions
- hydrate formation.
- principles of operation of plant/equipment
- physics and chemistry relevant to the process unit and the fluids involved
- 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 plant
- corrective action appropriate to the problem cause
- function and troubleshooting of major components and their problems

REQUIRED SKILLS AND KNOWLEDGE

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| <ul style="list-style-type: none">• types and causes of problems within operator's scope of skill level and responsibility. |
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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 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 well operation and the equipment integral to its use, 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

EVIDENCE GUIDE	
	<ul style="list-style-type: none"> • 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. <p>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.</p>
Context of and specific resources for assessment	Assessment will require access to an operating well over an extended period of time, or a suitable method of gathering evidence of operating ability 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>PMAOPS320B Conduct artificial lift.</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	
<p>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.</p>	
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 such items of equipment and unit operations which form part of the production/processing system. For your plant this may include (select relevant items):</p> <ul style="list-style-type: none"> • valves including non-return valves • pumps • prime movers • product separation units • instrumentation • testing equipment • hydraulic power units.
Typical problems	<p>Typical problems for your plant may include:</p> <ul style="list-style-type: none"> • leakage • vibration • loss of control of pressure and/or flow • hydrates/blockages • liquid slugging • corrosion • scale formation • erosion.
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>

RANGE STATEMENT

	<ul style="list-style-type: none"> • all work instructions • 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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