



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **PMAOPS216B Operate local control system**

**Revision Number: 1**

## PMAOPS216B Operate local control system

### Modification History

Not applicable.

### Unit Descriptor

<b>Unit descriptor</b>	This unit covers the operation of a local control panel. These controllers use simple control algorithms and only a limited number of control loops. Typically it will be located on the plant, but may also be located off plant and include simple panels in a control room which are not part of the main control panel.
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### Application of the Unit

<b>Application of the unit</b>	<p>In a typical scenario, the operator will use the local control panel to monitor and control process variables such as temperature or pressure and the operation of valves and pumps to add raw materials, additives, and discharge product. Routine start up and shut down of the equipment using the local control system is expected, as is emergency response and shut down. This includes but is not restricted to PLC control.</p> <p>This includes an understanding of the process and all OHS requirements including emergency situations.</p> <p>The unit does not apply to operating a control panel for an integrated plant, where the control is from a separate control room or control system, which is covered by PMAOPS305B Operate process control systems. The plant technician would:</p> <ul style="list-style-type: none"><li>• be aware of and contribute to a safe working environment</li><li>• identify and report operational problems to their supervisor / control room operator</li><li>• execute all routine activities, including process monitoring, start up, shut down and adjustments, in accordance with position description.</li></ul> <p>Generally the operator would operate independently in the plant. The operator would be expected to be capable of performing 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

<b>Prerequisite units</b>	
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## Employability Skills Information

<b>Employability skills</b>	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. Interface with the control panel	2.1. Monitor the process using the operator interfaces and keep appropriate personnel informed on developments 2.2. Select appropriate controller modes to ensure the effective control of the process 2.3. Undertake required set point/output changes to optimise plant and process requirements 2.4. Access historical data and information 2.5. Acknowledge messages and alarms.
3. Control the process using the local control system	3.1. Obtain relevant data and information from the control system by applying systems knowledge 3.2. Identify the status of individual pieces of equipment from the control panel and use information to identify potential faults 3.3. Interpret alarms and prioritise steps to ensure control of system is maintained 3.4. Minimise fluctuations and variations in process through the interpretation of existing trends and control schematics 3.5. Make required set point/output changes to meet plant and process requirements 3.6. Take other appropriate action as required 3.7. Record process variations/irregularities in accordance with procedures.
4. Facilitate planned and unplanned process start-ups and shutdowns	4.1. Respond to all alarms and take appropriate action 4.2. Maintain coordination with all outside services and operations in order to assist in the correct identification and reporting of faults 4.3. Conduct planned start-up and shutdown processes to procedures 4.4. Conduct unplanned start-up and shutdown processes to procedures 4.5. Communicate with all operational areas and personnel affected by unplanned events to ensure safety is maintained during the process 4.6. Implement all required and stated emergency responses and ensure the outcomes of these responses are

ELEMENT	PERFORMANCE CRITERIA
	communicated to all affected areas 4.7. Log all required information for further action to provide a historical record of all events.

## 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
- product parameters (temperature, flows, pressure and levels).
- An ability to communicate with other work groups and personnel during the operation and monitoring of this equipment is considered an essential element of this unit of competency.

#### Required knowledge

Competence includes an understanding of underpinning knowledge. Demonstration of competence in this unit must include knowledge of:

- all items on a schematic of the controller and the function of each
- principles of operation and location of the process/production equipment
- specific plant process operations
- product specifications and tolerances
- systems operating parameters
- basis of control for the process
- emergency shutdown procedures
- process specific physics, chemistry and mathematics
- process drawings, eg P&ID, PFD, cause and effect
- instrumentation and control systems, eg relevant primary sensing devices, final control elements, transducers/transmitters
- simple control loops, including PID control, set points, controlled variable, indicated variable
- effective communication techniques.

## 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 for this unit of competency will be on a local control system. Assessment of this unit should demonstrate 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 process control system 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.

This unit of competency requires a significant body of knowledge, which will 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 responses. 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

<b>EVIDENCE GUIDE</b>	
	<ul style="list-style-type: none"> <li>obvious problems in related plant areas are recognised and an appropriate contribution made to their solution.</li> </ul> <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>
<b>Context of and specific resources for assessment</b>	Assessment will require access to a process control system 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.
<b>Method of assessment</b>	<p>In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Consider co-assessment with appropriate operations competencies for the unit of plant.</p> <p>In a major hazard facility, it may be appropriate to assess this unit concurrently with:</p> <ul style="list-style-type: none"> <li><i>MSA OHS200A Work safely</i></li> </ul>
<b>Guidance information for assessment</b>	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.

<b>Codes of practice/standards</b>	Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used.
<b>Context</b>	<p>This unit of competency includes all such items of equipment and unit operations, which form part of the production/processing system. For your local control system this may include (select relevant items):</p> <ul style="list-style-type: none"> <li>• plant items requiring only simple control</li> <li>• programmable logic controllers (PLCs)</li> <li>• hard wired control and alarm panels</li> <li>• analogue control systems</li> <li>• personal computers</li> <li>• printers</li> <li>• fire and gas detection/protection systems</li> <li>• emergency shutdown systems</li> <li>• communications systems.</li> </ul> <p>Typical problems for your plant may include:</p> <ul style="list-style-type: none"> <li>• variation/loss of feed</li> <li>• unstable control of pressure, temperature level and flows</li> <li>• control equipment failure</li> <li>• process plant trips</li> <li>• change in atmospheric conditions (rain, temperature, wind, lightning)</li> <li>• emergency situations</li> <li>• loss of power/utilities.</li> </ul>
<b>Appropriate action</b>	<p>Appropriate action includes:</p> <ul style="list-style-type: none"> <li>• determining problems needing action</li> <li>• determining possible fault causes</li> <li>• rectifying problem using appropriate solution within area of responsibility</li> <li>• following through items initiated until final resolution has occurred</li> <li>• reporting problems outside area of responsibility to designated person.</li> </ul>
<b>Health, safety and</b>	All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through

**RANGE STATEMENT**

<b>environment (HSE)</b>	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)**

<b>Unit sector</b>	Operational/technical
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**Competency field**

<b>Competency field</b>	
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**Co-requisite units**

<b>Co-requisite units</b>		
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