



Australian Government

PMAOPS309B Operate particulates handling/storage equipment

Revision Number: 2

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Modification History

Release 2 – Minor changes to clarify unit and broaden its application, and minor editorial corrections.

Unit Descriptor

This competency covers the skills needed to manage a complex storage facility. This requires the operations technician to utilise the storage capacity efficiently, and to ensure particulates are stored in the appropriate containers/areas/stock pile. The operations technician also needs to monitor the quality and quantity of stock held in each.

Application of the Unit

The operations technician would operate the systems transporting particulates into or out of storage. This means setting up the required routing and starting and stopping conveyors/transport systems and their feeder systems (if any) to move materials from one point to another, for example, between storage units, from or into storage.

During the process the operations technician would monitor the transfer operations, and take appropriate action to keep particulates moving correctly. This could include removing blockages and preventing rat holing or bridging in hoppers/silos or other storage problems.

The operations technician would also maintain the cleanliness of the facility, along with carrying out minor maintenance according to procedures, and documenting/reporting maintenance requirements and other issues affecting the operation of the facility. At this level, the operations technician would also recognise and solve problems with the transfer or storage processes. This includes recognising indications of potential problems and taking appropriate and timely remedial action to ensure minimal loss of production time.

This competency also covers identifying and controlling hazards related to particulates handling equipment, storage facilities and surrounding areas.

For operations which do not require the managing of a complex storage facility see *PMAOPS210B Operate particulates handling equipment*.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable

Employability Skills Information

This unit contains employability skills.

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.

Elements and Performance Criteria

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| 1 | Prepare for work | 1.1 Identify work requirements |
| | | 1.2 Identify and control hazards |
| | | 1.3 Coordinate with appropriate personnel |
| 2 | Prepare storage facilities | 2.1 Identify contents of each storage unit/area in the facility |
| | | 2.2 Recognise storage types for each product being stored |
| | | 2.3 Identify leakage and other problems with storage facility |
| | | 2.4 Confirm safety systems are operational (where required) |
| | | 2.5 Carry out general housekeeping of facility to remove foreign matter or hazards |
| | | 2.6 Record and/or communicate identified maintenance requirements |
| 3 | Operate conveyor /particulate transport systems | 3.1 Identify the type of conveyor/feeder/transport system |
| | | 3.2 Identify the storage required to supply or store particulates |
| | | 3.3 Set up routing of transport systems to meet requirements |
| | | 3.4 Start up and shut down transport systems according to the type and duty |

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| | 3.5 | Complete routine checks, logs and paperwork, taking action on unexpected observations, readings and trends |
| | 3.6 | Convey correct material from and to correct location as required |
| 4 | Operate ancillary equipment if appropriate | |
| | 4.1 | Identify type of ancillary equipment |
| | 4.2 | Start up and shut down ancillary equipment according to its type and duty |
| | 4.3 | Monitor critical variables, such as amps, temperature or vibration, and recognise trends/patterns which indicate a potential or actual problem with the ancillary equipment |
| 5 | Manage particulates storage facility | |
| | 5.1 | Monitor quality and quantity of stored solids |
| | 5.2 | Identify and deal with product contamination |
| | 5.3 | Transfer stock into, out of or between storage units as required |
| | 5.4 | Supply customers with correct quality and quantity in a timely manner |
| | 5.5 | Make effective use of available storage capacity |
| | 5.6 | Monitor storage facility for actual or potential problems likely to affect the efficient operation of the facility |
| 6 | Isolate and de-isolate plant/equipment | |
| | 6.1 | Isolate plant/equipment |
| | 6.2 | Make safe for required work |
| | 6.3 | Check plant/equipment is ready to be returned to service |
| | 6.4 | Prepare plant/equipment for return to service |

Required Skills and Knowledge

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

Required skills

For the particulates system:

- efficient and effective operation of plant/equipment
- hazard analysis
- completing plant records
- communication
- problem solving
- ability to distinguish between:
 - grade and specification of materials
 - types and causes of problems to a level that allows problems to be isolated to an item of equipment

Required knowledge

For the particulates system required knowledge includes:

- principles of operation of plant/equipment
- physics and chemistry relevant to the process unit
- process parameters and limits (e.g. temperature, pressure, flow, pH and amps)
- duty of care obligations
- hierarchy of control
- communication protocols (e.g. radio, phone, computer, paper and 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 describe the function of each
- correct methods of starting, stopping, operating and controlling
- 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

An understanding of the particulates handling system and its integral equipment, and also of the storage facility to a level needed to control the handling system and storage facility, and to recognise and resolve problems. In particular it includes the ability to:

- identify all items of the particulates handling system and describe the function of each
- identify the location of all storage units in the facility and their contents

- describe the causes and remedies of common problems such as those selected in the Range Statement

It also requires a knowledge of:

- particulate properties
- logistics
- forward demand
- material storage requirements
- compatibility and contamination issues

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 and role plays.

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 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.

Context of and specific resources for assessment	Assessment will require access to an operating plant 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. In a major hazard facility, it may be appropriate to assess this unit concurrently with: • <i>MSAPMOHS100A Follow OHS procedures.</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

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	This competency unit includes items of equipment, such as: • mechanical conveyors/feeders (including belt, vibrating, screw and flight; and feeders such as screw, star, slide, volumetric and weight) • pneumatic conveyors (including aspects such as dense phase, disperse phase, pressure and vacuum) • storage facilities (e.g. silos, hoppers, stock piles and including purging hoppers)
Problems	Typical problems include: • damage to particulates • contamination of stored stock • rat holing and bridging in silos • routing issues, and so on

	• storage vessel/area capacities
Start up shut down as required	Start up shut down as required includes: • start up and shut down to/from normal operating conditions • start up and shut down to/from isolated, cold, empty • all other conditions experienced on the plant (i.e. from any condition to any condition experienced on the plant)
Appropriate action	Appropriate action includes: • 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	Procedures may be written, verbal, computer-based or in some other form. They include: • all work instructions • standard operating procedures • formulas/recipes • batch sheets • temporary instructions • any similar instructions provided for the smooth running of the plant For the purposes of this Training Package, 'procedures' also includes good operating practice as may be defined by industry codes of practice (e.g. Responsible Care) and government regulations.
Health, safety and environment (HSE)	All operations to which this unit applies are subject to stringent HSE 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.
Complex storage facility	A complex storage facility is one where, for example, there are: • multiple storages which need to be managed • significant logistics issues related to the transport and storage of the solids • the solids transport systems allow for various routings of the solids

- possibilities of, or consequences from, contamination which are significant

Unit Sector(s)

Operational/technical

Competency field

Not applicable

Co-requisite units

Not applicable