



Australian Government

PMAOPS309 Operate solids handling/storage facility

Release: 1

PMAOPS309 Operate solids handling/storage facility

Modification History

Release 1. Supersedes and is equivalent to PMAOPS309B Operate particulates handling/storage equipment

Application

This unit of competency covers the skills and knowledge required to manage a complex storage facility for particulate solids. 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
- solids transport systems that allow for various routings of the solids
- possibilities of, or consequences from, contamination which are significant.

This unit of competency applies to operations technicians who are required to determine handling and storage requirements, utilise the storage capacity efficiently, monitor the quality and quantity of stock, set up routing and undertake transfers, undertake minor maintenance and identify and solve problems.

This unit of competency applies to an individual operating independently in a plant with local control or in liaison with the control room operator in a plant with a centralised control panel, such as distributed control system (DCS) type controls.

This unit of competency applies to an individual working alone or as part of a team or group and working in liaison with other shift team members and the control room operator, as appropriate.

In a typical scenario the operations technician utilises the storage capacity efficiently, and ensures 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.

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

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Operations

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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| 1 | Prepare for work | 1.1 | Receive and give shift handover |
| | | 1.2 | Identify work requirements |
| | | 1.3 | Identify and control hazards |
| | | 1.4 | Coordinate with appropriate personnel |
| | | 1.5 | Check for recent work undertaken on handling and storage facility |
| | | 1.6 | Note any outstanding/incomplete work |
| | | 1.7 | Check operational status of handling and storage facility |
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| 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 |

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| | | 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/solids transport systems | 3.1 | Describe the type of handling and storage facility, the component plant items and their duties |
| | | 3.2 | Identify the storage required to supply or store particulates |
| | | 3.3 | Set up routing of transport systems to meet requirements |
| | | 3.4 | Complete routine checks, logs and paperwork taking appropriate action on unexpected readings |
| | | 3.5 | Adjust handling facility and its component plant items as appropriate to their type and duty to maximise performance |
| | | 3.6 | Convey correct material from and to correct location as required |
| 4 | Diagnose and take action on abnormal situations in accordance with procedures | 4.1 | Monitor handling and storage facility and its component plant items frequently and critically throughout shift using measured/indicated data and senses |
| | | 4.2 | Describe impacts of any changes upstream and downstream |
| | | 4.3 | Recognise actual and developing situations which may require action |
| | | 4.4 | Apply operational knowledge to resolve problems |
| | | 4.5 | Take other actions on abnormal situations which cannot be resolved during the shift to ensure safety and the resolution of the situation |
| | | 4.6 | Follow through items initiated until final resolution has occurred |

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| 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 handling and storage facility/equipment | 6.1 | Complete any required pre-start checks |
| | | 6.2 | Start up/shut down handling and storage facility according to the handling and storage facility type and duty in liaison with other personnel |
| | | 6.3 | Start up/shut down/changeover component plant items within unit according to their type and duty in liaison with other personnel |
| | | 6.4 | Isolate entire handling and storage facility and/or any component plant item |
| | | 6.5 | Make safe for required work |
| | | 6.6 | Check handling and storage facility/plant item is ready to be returned to service |
| | | 6.7 | De-isolate and prepare handling and storage facility/plant item for return to service |

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:

- legislative requirements, including work health and safety (WHS)
- industry codes of practice and guidelines
- environmental regulations and guidelines
- Australian and other standards
- licence and certification requirements

All operations to which this unit applies are subject to stringent health, safety and environment (HSE) requirements, which may be imposed through state/territory 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.

Hazards Hazards include one or more of the following:

- solids falling from conveyors
- electricity
- structural hazards
- structural collapse
- equipment failures
- industrial (machinery, equipment and product)
- equipment or product mass
- noise, rotational equipment or vibration
- plant services (steam, condensate and cooling water)
- working at heights, in restricted or confined spaces, or in environments subjected to heat, dusts or vapours
- flammability and explosivity
- hazardous products and materials
- unauthorised personnel
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- extreme weather
- other hazards that might arise

Situations requiring action

Situations requiring action include one or more of the following:

- damage to particulates
- damage to conveyors/storage
- contamination of stored stock
- rat holing and bridging in silos/hoppers
- routing issues, and so on
- storage vessel/area capacities

Non-routine problems

Non-routine problems are unexpected problems, or variations of previous problems and must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person

Operational knowledge includes one or more of the following:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people

Start up/shut down

Start up/shut down includes the following:

- start up and shut down to/from normal operating conditions
- start up and shut down to/from isolated, cold or empty
- start up and shut down to/from other conditions/situations experienced on the plant

Procedures

All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, include one or more of the following:

- emergency procedures
- work instructions

- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant

Equipment Equipments includes, as appropriate to the site, one or more of the following:

- 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)
- ancillary equipment, such as drive motors, hydraulics, coolers, fans/blowers, safety equipment and instrumentation

Operate Operate is to monitor, adjust/make change to the production unit and/or its component items to meet specifications, by one or both of the following:

- manually in the plant
- using local controller in the plant

This competency does not require the operation of a central control panel.

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMAOPS309B Operate particulates handling/storage equipment

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>

Assessment Requirements for PMAOPS309 Operate solids handling/storage facility

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Performance Evidence

- Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and includes the ability to:
- perform pre-start checks, start-up/shutdown and cleaning procedures, and isolations and de-isolations
- set up routing of transport systems
- operate and monitor equipment to safely move stock to and retrieve from the appropriate areas
- identify hazards and risks and apply risk control procedures
- identify early warning signs of equipment/stock needing attention or with potential problems and take action
- resolve non-routine problems
- manage storage area taking into account quality and quantity of stock, effective use of storage capacity and customer needs

identify hazards and risks and apply risk control procedures.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- all items on a schematic of the system and functions of each
- principles of operation of plant/equipment
- interactions between plant items/processes
- systems' operating parameters and integrity limits, product specifications and tolerances
- impact of external factors (e.g. variations in weather)
- function and troubleshooting of major components and their problems and resolution
- particulate properties
- logistics
- forward demand
- material storage requirements
- compatibility and contamination issues
- hierarchy of control
- hazards that may arise in the job/work environment, and:
 - their possible causes
 - potential consequences

- appropriate risk controls.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence based on a holistic assessment of the evidence.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operations
 - will typically include a supervisor/third-party report focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
 - must include the use of industrial type storage and handling facility appropriate to this unit allowing demonstration of operation
 - may use industry-based simulation for part only of the unit particularly where safety, lack of opportunity or significant cost is an issue.
- Assessment should occur in operational workplace situations. Where this is not possible, or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment reflecting realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from one or more of:
 - walk-throughs
 - pilot plant operation
 - demonstration of skills
 - industry-based case studies/scenarios
 - 'what ifs'.
- Knowledge evidence may be collected concurrently with performance evidence (provided a record is kept) or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.

- In addition, the assessor or anyone acting in subject matter expert role in assessment must demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they must assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment
 - appropriate workplace experience undertaking the type of work being assessed under routine and non-routine conditions
 - appropriate workplace experience supervising/evaluating the type of work being assessed under routine and non-routine conditions
- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency in accordance with that organisation's policies and procedures
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on-the-job training/assessments of the type of work being assessed
 - being an active member of a relevant professional body and participating in activities relevant to the assessment of this type of work.

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