



Australian Government

PMAOPS240 Store fluids in bulk

Release: 1

PMAOPS240 Store fluids in bulk

Modification History

Release 1. Supersedes and is equivalent to PMAOPS240B Store fluids in bulk

Application

This unit of competency covers the skills and knowledge required to store and transfer fluids to and from tanks. This is often called ‘operating a tank farm’.

Fluids are any materials which flow. They include materials which:

- are normally a liquid at ambient conditions
- are normally a gas at ambient conditions
- have been liquefied
- have been vapourised
- have been melted.

This unit of competency applies to plant technicians who are required to:

- identify the material and interpret any special handling or storage requirements, including dangerous or hazardous goods requirements, from the available information
- ensure that the destination for the liquid is appropriately prepared, has enough capacity and is correctly piped
- check that the liquids are being stored safely in tanks and that safety equipment and services are monitored
- transfer liquids
- respond to abnormal situations.

In a typical scenario the plant technician will manage a series of liquid storage vessels for raw materials, intermediate product and/or finished product. The plant technician will arrange for the unloading/loading of tanker trucks, and transfer of fluids between storage vessels and/or the process.

This unit of competency applies to an individual who may work alone although under routine direction and supervision. They may work as part of a team or group and will work in liaison with other shift team members and the control room operator, as appropriate.

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

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 tank farm items |
| | | 1.6 | Note any outstanding/incomplete work |
| | | 1.7 | Check operational status of tank farm items |
| | | | |
| 2 | Prepare storage/loading facilities | 2.1 | Ensure that products are being stored in the tank area to procedures |
| | | 2.2 | Inspect storage and transfer facilities for leaks or damage and take any action specified in procedures |
| | | 2.3 | Check and test safety equipment and systems to verify their operational condition and status, and report all equipment faults in accordance with procedures |
| | | 2.4 | Confirm quantities and specifications of stored fluids in each tank |
| | | | |
| 3 | Transfer fluids to and from tanks | 3.1 | Confirm tank capacities and identification and quality of current contents, and determine if these are being maintained within the agreed product requirements prior to transfer |
| | | 3.2 | Check all valves are correctly lined up |

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| | 3.3 | Ensure all areas involved in the transfer are safe to allow transfer of fluids to occur |
| | 3.4 | Inspect all transfer equipment before transfer, including lines, hoses, pumps, fittings, instruments and controls |
| | 3.5 | Confirm that transfer destination has sufficient capacity for the transfer and take any action specified in procedures |
| | 3.6 | Transfer liquids safely in accordance with procedures |
| | 3.7 | Conduct cleaning, purging or draining after transfer is complete in accordance with procedures |
| | 3.8 | Record transfer in accordance with procedures |
| 4 | Isolate and de-isolate plant | |
| | 4.1 | Isolate tank farm plant items |
| | 4.2 | Make safe for required work |
| | 4.3 | Check plant is ready to be returned to service |
| | 4.4 | De-isolate and prepare 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.

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| Regulatory framework | <p>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:</p> <ul style="list-style-type: none"> • legislative requirements, including work health and safety (WHS) • industry codes of practice and guidelines |
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- 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.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and 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

Hazards Hazards include one or more of the following:

- electricity
- gas
- gases and liquids under pressure
- 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, dust 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

Routine problems

Routine problems must be resolved by applying known solutions.

Routine problems are predictable and include one or more of the following:

- interruptions to loading through adverse weather conditions
- selection of appropriate storage facility
- control of temperature and pressure
- variations in feed
- vibration
- tank capacities and space

Known solutions are drawn from one or more of the following:

- procedures
- training
- remembered experience

Non-routine problems must be reported according to according to relevant procedures.

Equipment

This unit of competency includes all such items of equipment and unit operations, which form part of the storage and loading system, including as appropriate to the facility, one or more of the following:

- tanks
- vessels
- pumps
- compressors
- road or rail tanker loading facilities
- gauges
- fire protection and deluge systems
- inert gas blanketing or purging systems (e.g. nitrogen)
- gas detection systems and equipment
- tank dipping and measurement equipment

Start up/shut down as required

Start up/shut down as required includes the following:

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

Unit Mapping Information

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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 PMAOPS240 Store fluids in bulk

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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 include the ability to:

- determine and apply any special handling or storage requirements, including dangerous or hazardous goods requirements
- undertake checks, inspections and tests to confirm processes and equipment conform to safety requirements and job specifications
- recognise early warning signs of equipment/processes needing attention or with potential problems
- take appropriate action to ensure a timely return to full performance
- isolate and de-isolate equipment
- identify hazards and apply hazard control procedures
- complete workplace forms.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- all items on a schematic of the tank farm and the functions of each
- storage and transfer techniques required for the materials being handled
- tank capacities, percentages and product mixes
- flow rates and measures
- static electricity principles
- principles of operation of plant/equipment
- science (e.g. physics, chemistry, biochemistry) relevant to the plant items and materials being handled
- process parameters and limits (e.g. temperature, pressure, flow and pH)
- relevant alarms and actions
- function and troubleshooting of major components and their problems
- 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 operation of an operating plant
 - will typically include a supervisor/third-party report or other evidence, 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 an appropriate industrial item of equipment requiring demonstration of operation, start-up and shutdown procedures and responding to problems
 - may use industry-based simulation for part only of the unit 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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