



Australian Government

PMAOPS343 Transfer bulk fluids into/out of storage facility

Release: 1

PMAOPS343 Transfer bulk fluids into/out of storage facility

Modification History

Release 1. Unit code and Application changed. Performance Criteria changed. Range of Conditions removed. Assessment Requirements changed. Supersedes and is equivalent to PMAOPS307 Transfer bulk fluids into/out of storage facility.

Application

This unit describes the skills and knowledge required to transfer bulk fluids into/out of a storage facility. The storage facility may be a land-based tank farm or a tanker at sea.

The storage facility or vessel will be monitored through the use of gas and fire detection (or other safety) equipment. Automatic sprinkler systems, deluges or other emergency response equipment will be activated in the event of fire/emergency detection and emergency shutdown systems will operate.

The equipment to be used in the transfer of product will be checked and tested before use. In some cases, before transferring, the circulation of product through pipelines will commence. This is usually for the purpose of pipeline chilldown and is required to minimise vapor pressure build-up in warm pipework.

A comprehensive fire water supply main may encompass the facility and/or be located on the vessel, and a suitable fire pump would be able to provide fire water requirements in emergencies.

This unit applies to autonomous operators who are required to demonstrate a significant understanding of the process and the equipment operation in a plant with local control, or in liaison with the control-room operator in a plant with a centralised control panel.

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

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

Nil

Competency Field

Operations

Elements and Performance Criteria

Elements	Performance Criteria
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<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Operate storage and/or transfer facility according to procedures	1.1 Receive and give shift handover 1.2 Communicate with personnel to identify and coordinate work requirements 1.3 Identify, control and report hazards 1.4 Check for recent work undertaken on storage and transfer facilities and address outstanding and incomplete work 1.5 Check operational status and test safety systems to verify their operational condition and status, and report on all equipment faults 1.6 Manage products within the tank farm or at the platform in accordance with the site storage types, products and locations 1.7 Inspect storage and/or docking facilities for leaks or damage and ensure areas are safe, clean and equipment cannot be compromised by debris 1.8 Identify and report equipment requiring maintenance
2. Monitor storage facility	2.1 Confirm tank mixes, capacities and quality, and determine if these are being maintained within the agreed product requirements prior to transfer 2.2 Monitor gas detection, environmental and safety systems to ensure the storage area is a safe environment and that the safety of the area or vessel is not compromised 2.3 Communicate storage conditions to personnel to inform them of the operational condition and status of the storage facilities or vessel
3. Monitor load-out/transfer platform or facility according to procedures	3.1 Monitor load-out and/or transfer systems on the platform or in the terminal load-out/transfer area 3.2 Monitor gas detection, environmental and safety systems to ensure the load-out/transfer area is a safe environment 3.3 Inform personnel of the load-out/transfer area status, and conditions of the storage facilities
4. Conduct load-out/transfer according to procedures	4.1 Communicate operational status to required personnel prior to loading 4.2 Ensure that all startup permissives have been satisfied and product is ready for transfer 4.3 Set and adjust pump flow rates to keep within agreed capacities 4.4 Monitor loading pump performance to keep within stated operational ranges and vibration limits

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	4.5 Take and record product samples
5. Identify and respond to abnormal situations during operation	5.1 Monitor facility frequently and critically throughout shift using own senses, and measured and indicated data 5.2 Monitor field data and instrumentation to ensure that product remains on specification 5.3 Identify impacts of changes upstream and downstream 5.4 Identify actual and developing situations that may require action 5.5 Take action to remedy abnormal situations according to operating procedures 5.6 Complete required documents outlining abnormal situation management and corrective action taken
6. Shut down and prepare facility for maintenance	6.1 Prepare facility to be shut down according to operating procedures 6.2 Complete pre-shutdown checks according to operating procedures 6.3 Shut down facility according to operating procedures 6.4 Identify, control and report shutdown hazards 6.5 Monitor shutdown and identify abnormal situations that may require action 6.6 Take action to remedy abnormal situations according to operating procedures 6.7 Shut down and changeover duty and standby equipment according to operating procedures 6.8 Isolate facility from energy sources
7. Prepare and start up facility	7.1 De-isolate and prepare facility to be returned to standby or service 7.2 Complete pre-start checks according to operating procedures 7.3 Start up facility according to operating procedures 7.4 Identify, control and report startup hazards 7.5 Monitor startup and identify abnormal situations that may require action 7.6 Take action to remedy abnormal situations according to operating procedures

Foundation Skills

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

- Learning skills to follow instructions, monitor process and select appropriate procedure.
- Reading skills to follow written procedures and documentation.
- Writing skills to complete workplace documentation.
- Oral communication skills to liaise and coordinate with team members and the control-room operator.
- Numeracy skills to monitor field data, instrumentation and process parameters.

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

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMAOPS307 Transfer bulk fluids into/out of storage facility.

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 PMAOPS343 Transfer bulk fluids into/out of storage facility

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit:

- at least 2 times, each in a separate work context

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- all items on a schematic of the storage/transfer system, including:
 - interactions between plant items and processes
 - operating parameters and integrity limits, product specifications and tolerances, tank and product mixes, flow rates and measures, tank capacities and percentages, process parameters and limits, including temperature, pressure, flow and pH
 - function and troubleshooting techniques of major components, including impellers, seals or bearings
 - procedures for starting, stopping, operating, controlling and isolating the facility
- physics and chemistry to the level of being able to provide an overview of the science of the storage/transfer process and the causes of head loss in piping systems, including comparison of fittings using the L/d concept, fluid and pipe material properties, flow geometry and static electricity principles
- storage facility abnormal situations and required actions, including:
 - insufficient and inappropriate storage for product and material
 - interruptions to loading through adverse weather conditions
 - product surging
 - control of temperature and pressure
 - variations in feed
 - vibration
 - tank capacities and space
 - problems with major components
- hierarchy of control
- storage and transfer hazards:
 - possible causes

- potential consequences
- appropriate risk controls.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - storage transfer facility and equipment
 - operating procedures
- abnormal situations must be relevant to the transfer of bulk fluids.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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