



Australian Government

PMAOPS347 Create and conduct isolations in the workplace

Release: 1

PMAOPS347 Create and conduct isolations in the workplace

Modification History

Release 1. This version was released with PMA Chemical, Hydrocarbons and Refining Training Package, Release 2.0.

Application

This unit of competency describes the skills and knowledge required to isolate and prepare a plant for maintenance work, maintain isolations, remove isolation and return a plant to service.

This unit of competency applies to operators, maintainers and those in similar roles who are required to create and conduct isolations and de-isolations, and reinstate equipment in an industrial installation. The person will have detailed operational and process knowledge and may work alone or as part of a team. The person will usually report through to a permit co-ordinator, supervisor or central-control-room operator.

Creation and implementation of the isolation requires appropriate consideration of known plant equipment and/or systems not functioning according to design. This typically includes but is not limited to passing valves, blocked lines, drains and system dead legs.

No licensing, legislative 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

PMASUP244 Prepare and isolate plant

Competency Field

Operations

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare for isolations according to procedures	1.1 Communicate with relevant stakeholders to confirm the scope of work, and the need for timing of the isolation 1.2 Identify hazards in the system that need to be controlled to a state of zero energy 1.3 Create appropriate isolation documents using current workplace

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	isolation procedures 1.4 Verify isolation design 1.5 Submit isolation documentation according to workplace isolation submission chain-of-custody requirements
2. Conduct isolations	2.1 Confirm with stakeholders that isolation is ready to proceed 2.2 Conduct the isolation according to isolation design and operating procedures 2.3 Remove energy input and hazardous inventory in accordance with operating procedures 2.4 Ensure isolation integrity is performed according to operating procedures 2.5 Participate in appropriate handovers of equipment and isolation documentation according to operating procedures
3. Maintain Isolations	3.1 Maintain isolation integrity according to operating procedures 3.2 Take corrective action when isolation integrity is no longer effective
4. Conduct de- isolations	4.1 Confirm process plant is mechanically complete 4.2 Obtain de-isolation documentation according to operating procedures 4.3 De-isolate and reinstate plant according to operating procedures 4.4 Maintain appropriate communication with relevant stakeholders 4.5 Finalise documentation 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. New Unit.

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 PMAOPS347 Create and conduct isolations in the workplace

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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, and:

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

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- physical plant and equipment including:
 - the equipment/process being isolated
 - energy sources relevant to plant equipment
- policies and procedures including:
 - methods of creating isolations
 - methods of de-energising and isolating energy sources
 - the scope/boundaries of own role when creating and conducting the isolations
 - safety, emergency and hazard control
 - work permit systems
 - risk control measures and procedures
 - hierarchy of control
 - isolation requirements
 - methods of purging, venting, bleeding, draining and flushing
 - isolation chain of custody and handover protocols
 - communications
 - environmental management including controlling releases
 - duty of care requirements
 - standard operating procedures (SOPs)
 - work instructions
 - safe work method statements (SWMS)
 - document control
- operational parameters including:
 - methods and equipment used for draining and purging to attain zero energy
 - decontamination methods and requirements for various materials and situations

- significance of time allowed for draining, purging and ventilation
- fluid dynamics relating specifically to draining piping systems, including:
 - the ability of a liquid to ‘hang-up’ in pipework
 - the importance of identifying high-point vents to release gas/vapours and low point drains to release liquids
 - how to determine the amount of liquid drained from a piping section to ascertain/prove that draining process has been effective
- the potential effects of creating a vacuum by not draining correctly (e.g. by pulling a vacuum behind a slug of liquid)
- the ALARP (as low as reasonably practicable) principle
- importance of appropriate rates of change for pressure and temperature for vessels and other plant equipment
- risk management including:
 - the chemical and physical properties of the energy sources being isolated including one or more of the following:
 - electricity (mains, solar and by generator)
 - chemicals and fuels
 - heat and steam
 - pressure, such as compressed air and water, hydraulic oil and other fluids under pressure
 - energy-storing devices such as batteries, springs, flywheels, accumulators and capacitors.
 - trapped pressure
 - site requirements in completion of bleed logs.

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:
 - real industrial equipment and its associated energy sources
 - operating procedures
 - paperwork must include:
 - isolation register(s)
 - lock-out/tag-out register(s)
 - appropriate sign-offs
 - any reports, permits/work packs, and documentation required by the job/organisation
 - filing of documentation in accordance with workplace protocols.

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

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