



Australian Government

PMBPROD308 Take a machine out of production

Release: 1

PMBPROD308 Take a machine out of production

Modification History

Release 1. Supersedes and is equivalent to PMBPROD308B Take a machine out of production

Application

This unit of competency covers the skills and knowledge required to perform a long-term shutdown of equipment. Long-term shutdown is performed where the machine needs to be or become 'cold', typically for maintenance, a holiday shutdown period or mothballing of the machine.

This unit of competency applies to advanced operators who are required to take handover from the operator, determine the type of shutdown, adjust and stop the machine and ancillary equipment, make the equipment safe, leave parts in required condition and solve problems within area of responsibility.

This unit of competency applies to an advanced operator demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The advanced operator may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

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

Pre-requisite Unit

Nil

Competency Field

Production

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

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

1 **Take over operation of the**

1.1 Arrange handover from the operator (if necessary)

1.2 Determine type and reason for shutdown

	machine	1.3	Implement measures to control identified hazards in line with procedures and duty of care
		1.4	Notify relevant associated personnel
2	Perform long-term shutdown	2.1	Stop material feed
		2.2	Purge, using appropriate materials as required
		2.3	Switch off ancillaries as required
		2.4	Make required adjustments to ensure the safety of machine and materials
		2.5	Isolate, lock out and make machine safe for personnel, and leave with appropriate tags or notices
		2.6	Complete relevant documentation
3	Perform post-shutdown preventive maintenance and cleanup after long-term shutdown	3.1	Clean all components as required
		3.2	Apply required surfaces treatments
		3.3	Leave all parts in required condition
		3.4	Confirm all isolations have been done
		3.5	Pack/process any remaining goods/ product and label as required
		3.6	Sort material that can be salvaged from waste and arrange reprocessing/disposal to procedures
		3.7	Ensure area is clean and clear, ready for restarting of the machine
4	Anticipate and solve problems	4.1	Recognise a problem or a potential problem
		4.2	Determine problems needing priority action
		4.3	Refer problems outside area of responsibility to appropriate person, with possible causes
		4.4	Seek information and assistance as required to solve

problems

4.5 Solve problems within area of responsibility

4.6 Follow through items initiated until final resolution has occurred

Foundation Skills

This section describes those required skills (language, literacy and numeracy) 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.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, manual handling and hazardous materials
- Australian/international standards relevant to the materials being used and products being made
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent 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 such requirements the legislative 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 any combination of:

- 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.

Tools and equipment

Tools and equipment include:

- production plant/equipment
- machine control systems
- safety interlocks and systems
- measuring instruments
- ancillary equipment that is integral to the process.

Additional tools and equipment will be selected as required from:

- hand tools used in the process
- hoists/lifting equipment not requiring any special permits or licences
- manual handling aids, such as hand carts and trolleys
- relevant personal protective equipment (PPE).

Hazards

Hazards must be identified and controlled. Identifying hazards requires consideration of:

- weight, shape, volume of materials to be handled
- hazardous products and materials
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- smoke, dust, vapours or other atmospheric hazards
- high temperatures
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- equipment failures
- machinery, equipment and product mass
- other hazards that might arise.

Problems Routine and non-routine problems must be resolved.

Non-routine problems 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.

Non-routine problems are unexpected problems or variations of previous problems and include one or more of:

- unstable process variables
- sub-optimal operation
- variations in feed rates
- variations in quality
- emergency situations.

Operational knowledge includes one or more of:

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

Routine problems are predictable and have known solutions and include one or more of:

- cycle interruptions
- degradation of materials
- cooling and solidification of compounds
- rusting and corrosion of moulds put in storage
- clearing jams
- damage to equipment.

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBPROD308 Take a machine out of production

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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 demonstrate the ability to:

- read and interpret procedures, job specifications, instruments/control panels, material labels and safety data sheets (SDS)
- safely shutdown the machine, feed and ancillary equipment by adjusting machine control system, including one or more of:
 - basic controls
 - open loop
 - closed loop
 - shot size and correction capacity
 - speed/cycle time
 - screw position
 - equipment/process pressure
 - clamp pressure
 - time
 - screw speed
 - screw back pressure
 - screw back time
 - melt decompress position
 - sprue break
- monitor key variables, including:
 - temperature
 - fill rate
 - screw RPM
 - speed
 - brakes
 - stopping distance
- safely shut down equipment in normal and abnormal circumstances
- isolate, lock out and make machine safe
- apply preventive maintenance, clean up and housekeeping procedures
- identify hazards and apply relevant hazard controls

- apply safety procedures
- apply waste management procedures
- recognise early warning signs of equipment/processes needing attention or with potential problems
- distinguish between causes of problems, including:
 - operational problems
 - instrument failure/malfunction
 - electrical failure/malfunction
 - mechanical failure/malfunction
 - wrong readings
 - equipment design deficiencies
 - polymer properties
 - process variables
 - raw material variations/contamination
 - process abnormalities
 - procedural errors
- recognise and prioritise problems requiring action
- resolve non-routine problems
- communicate effectively with team/work group and supervisors
- complete workplace records
- do basic arithmetical manipulations, including additions, subtractions, divisions, fractions and percentages.

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job sufficient to operate independently and to solve routine and non-routine problems, including knowledge of:

- structure, functions and principles of operation of equipment, machine components and ancillary equipment
- impact of variations in production cycle/process/sequence on shutdown of equipment systems
- functions and applications of analogue controls, digital controls, and microprocessor based process controls
- function of and readings from measuring instruments, including one or more of:
 - levelling
 - thermocouples
 - pyrometers
 - transducers
 - thermometers
 - pressure gauges
 - vacuum gauges
 - flow meters

- purpose and operation of safety interlocks and systems, including one or more of:
 - limit switches
 - normally open/normally closed
 - overstroke control systems
 - hydraulic temperature control
 - material temperature control
 - machine guards
 - nozzle purge guard
 - mould protection systems
 - ejection limit switches
- characteristics of materials and behaviour in relation to heat, pressure, flow rate and time
- routine and non-routine problems that may arise, the range of possible causes and appropriate actions
- organisation procedures relevant to the work environment/job role
- 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 shall be based on a holistic assessment of the evidence.
- The collection of performance evidence is best done from a report and/or folio of evidence drawn from:
 - a single project which provides sufficient evidence of the requirements of all the elements and performance criteria
 - multiple smaller projects which together provide sufficient evidence of the requirements of all the elements and performance criteria
- A third-party report, or similar, may be needed to testify to the work done by the individual, particularly when the project has been done as part of a project team.
- Assessment should use a real project in an operational workplace. Where this is not possible or where personal safety or environmental damage are limiting factors assessment must occur using a sufficiently rigorous simulated environment that reflects 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 demonstration of skills and one or more of:
 - walk-throughs
 - pilot plant operation
 - industry-based case studies/scenarios

- ‘what ifs’.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews.
- 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 shall demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they shall 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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