



Australian Government

PMAOPS522 Coordinate plant shutdown

Release: 1

PMAOPS522 Coordinate plant shutdown

Modification History

Release 1. Supersedes and is equivalent to PMAOPS522A Coordinate plant shut down

Application

This unit of competency covers the skills and knowledge required to coordinate a planned, major shutdown.

A planned, major shutdown may be for whole plant/system, one plant area or one plant in an integrated complex and will typically occur to enable:

- regulatory vessel inspection (PVI)
- major maintenance
- upgrades or refits
- catalyst and/or column repacking
- other activities which are scheduled for the shutdown.

This unit of competency applies to senior technicians or those in similar roles who are required to apply in-depth knowledge of process and plant operations and problem solving in order to coordinate shutdown sequence to ensure all process shutdown activities completed to schedule, coordinate the activities of a number of work groups, analyse/problem solve and develop contingency plans, and identify and coordinate resources and pre-shutdown requirements.

This unit of competency applies to a plant technician who is performing the plant shutdown coordinator role as their primary activity. This technician would be part of a team working with technical experts, maintenance experts, contractor representatives, process/production teams and management.

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.

1	Identify shutdown work scope	1.1	Analyse relevant information for activities intended for the shutdown
		1.2	Determine all activities intended for shutdown
		1.3	Confirm priorities and identify all essential work
		1.4	Resolve conflicts between proposed activities
2	Plan and schedule resources	2.1	Identify each individual task in the shutdown process
		2.2	Determine resources required for each task and assign appropriate owner
		2.3	Determine prerequisite tasks prior to shutting down process
		2.4	Ensure hazards are identified and controls are in place
		2.5	Ensure all safety and testing equipment is calibrated and on site prior to shutdown commencing
		2.6	Compile a schedule to track shutdown and equipment preparation sequence
3	Coordinate plant/equipment shutdown sequence	3.1	Prepare/review shutdown documentation
		3.2	Coordinate plant shutdown according to procedures
		3.3	Track plant shutdown progress
		3.4	Coordinate execution of critical function test during shutdown phase
		3.5	Coordinate equipment preparation
		3.6	Validate equipment is safe to hand over to appropriate work party

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| 4 | Hand over plant/
equipment to
relevant work
party | 4.1 | Hand over plant and equipment to relevant work group according to site protocol |
| | | 4.2 | Perform safety audits during shutdown work |
| | | 4.3 | Record/report health, safety and environment (HSE) non-conformance |
| | | 4.4 | Communicate as and when required |
| | | 4.5 | Monitor shutdown work against critical path |
| | | 4.6 | Monitor resource usage and take action |
| | | 4.7 | Identify barriers to achieving shutdown critical path and negotiate solution |
| | | | |
| 5 | Communicate
with all relevant
stakeholders | 5.1 | Communicate shutdown plan/schedule to operations team |
| | | 5.2 | Attend and contribute to regular shutdown progress meetings |
| | | 5.3 | Record and report daily shutdown activities |
| | | 5.4 | Ensure all authorisations required for tasks have been obtained |
| | | 5.5 | Identify, communicate and manage HSE issues arising during execution of shutdown activities |
| | | 5.6 | Contribute to post shutdown review |
| | | | |
| 6 | Return plant to
service | 6.1 | Confirm that all scheduled work on equipment is complete before hand back is accepted |
| | | 6.2 | Ensure equipment hand back documentation complete according to site protocol |
| | | 6.3 | Coordinate pre-start equipment integrity checks |
| | | 6.4 | Coordinate and validate plant de-isolation and preparation for service |

- 6.5 Ensure appropriate plant start-up authority is obtained
- 6.6 Coordinate start-up critical function tests as required
- 6.7 Coordinate and record plant start-up progress

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.

- 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

Scheduling Scheduling may be electronic or paper-based and include at least one more of the following:

- electronic databases, such as Access, DB, and Oracle
- project management software (e.g. Project, Gantt charts, critical path method (CPM) and programmed evaluation and review technique (PERT))
- other electronic forms, such as spreadsheets
- card files
- other paper-based systems
- other specialised planning software
- paper techniques

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 PMAOPS522 Coordinate plant shutdown

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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:

- lead and coordinate shutdown team to ensure safe and efficient plant shutdown and preparation according to procedures without incident
- record and report all aspects of shutdown activities to stakeholders according to enterprise protocol
- communicate and negotiate effectively with technical (process) experts, maintenance experts, contractor representatives, production management and other stakeholders to obtain the best outcome for the shutdown from competing priorities
- determine resource requirements, including:
 - utility services, such as steam, nitrogen, power, water and chemicals
 - workforce, such as operators, maintenance, contractors, engineers, laboratory staff, safety observer and standby rescue crew
 - mobile equipment, such as elevated work platforms, Hiab, vacuum trucks and drip trays
 - other equipment, such as hoses, plugs and caps, scaffold and extra fire protection equipment.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- interpretation of project planning tools being used
- a comprehensive knowledge of plant shutdown events and their impact on upstream and downstream interfaces
- plant/equipment/processes impacted by the shutdown
- safe working practices related to the type of plant and equipment being shut down and worked on
- correct methods of shutting down plant items
- organisation procedures.

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 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 practical, assessment must occur using 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.
- Knowledge evidence may be collected concurrently with performance evidence 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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