



Australian Government

PMAOPS521 Plan plant shutdown

Release: 1

PMAOPS521 Plan plant shutdown

Modification History

Release 1. Supersedes and is equivalent to PMAOPS521C Plan plant shutdown

Application

This unit of competency covers the skills and knowledge required to develop a detailed plan for 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 identify the type and purpose of the shutdown, identify required tasks and critical path, plan and schedule tasks, and monitor the shutdown against the plan.

Shutdown planning is usually a team activity and so this technician would also be working with technical (process) experts, maintenance experts, contractor representatives, and liaising with production and other management.

Generally this would be a seconded role of a senior plant technician who for the period of the shutdown, and for a significant period before the shutdown, would undertake this as their primary activity.

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 | Identify maintenance/
project and plant
requirements | 1.1 | Analyse relevant company records to determine activities which have been scheduled for the shutdown |
| | | 1.2 | Obtain information on maintenance activities intended for the shutdown. |
| | | 1.3 | Obtain information on production activities intended for the shutdown |
| | | 1.4 | Obtain information on projects or construction activities intended for the shutdown |
| | | 1.5 | Compile a list of all activities intended for the shutdown, including sufficient detail to allow for shutdown planning |
| | | 1.6 | Negotiate conflicts between proposed activities |
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| 2 | Identify tasks, timelines and resources | 2.1 | Break down each agreed shutdown activity into required tasks |
| | | 2.2 | Determine time, people, material, other resources required and 'owner' for each task |
| | | 2.3 | Determine prerequisite tasks for each task |
| | | 2.4 | Identify conflicts between tasks arising from resources or other causes |
| | | 2.5 | Negotiate conflicts between tasks |
| | | 2.6 | Compile database of all tasks and their requirements |
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| 3 | Develop schedule | 3.1 | Develop draft shutdown schedule, including planning activities |
| | | 3.2 | Determine critical path or similar for shutdown tasks |

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| | | 3.3 | Analyse tasks on critical path to determine methods of reducing critical path |
| | | 3.4 | Develop revised schedule |
| | | 3.5 | Consult with all relevant stakeholders and analyse revised schedule for conflicts and possible savings |
| | | 3.6 | Negotiate conflicts |
| | | 3.7 | Develop final schedule and critical path or similar |
| 4 | Communicate with all relevant stakeholders | 4.1 | Contribute to shutdown planning meetings with stakeholders |
| | | 4.2 | Meet with stakeholders individually |
| | | 4.3 | Prepare reports and documents as required |
| | | 4.4 | Ensure all permissions required for tasks have been obtained |
| | | 4.5 | Liaise with suppliers and contractors to obtain parts, materials and services |
| 5 | Monitor shutdown | 5.1 | Establish systems to allow monitoring of shutdown to schedule |
| | | 5.2 | Monitor progress to schedule |
| | | 5.3 | Identify causes of not meeting schedule |
| | | 5.4 | Negotiate a solution to cause |
| | | 5.5 | Adjust schedule to meet changed circumstances but still meet overall timeline (if at all possible) |

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 PMAOPS521 Plan 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:

- identify all necessary activities, tasks and logical sequences to ensure safe and efficient shutdown
- 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
- use planning tools to develop, modify and optimise complex plans/schedules
- breakdown work tasks into steps/stages/trades/contractors/ parts/designs/spares/tools
- monitor shutdown against plan and re-schedule/ adjust/update plans as required.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- methods of task breakdown
- critical path (or similar) technique
- project scheduling techniques
- correct methods of shutting down plant items.

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, or where it is desirable to test for competence before taking a major role in a shutdown, 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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