



Australian Government

PMAOPS411 Manage plant shutdown and restart

Release: 1

PMAOPS411 Manage plant shutdown and restart

Modification History

Release 1. Supersedes and is equivalent to PMAOPS411B Manage plant shutdown and restart

Application

This unit of competency covers the skills and knowledge required to manage the shutdown and restart of a complex and integrated plant. It applies to planned, shutdowns and start-ups, but may also be applied to unplanned and emergency shutdowns (ESD). It does not apply to plant trips.

This unit of competency applies to senior technicians, panel technicians, outside technicians and those in similar roles who are required to apply in-depth knowledge of process and plant to in order to adapt normal practice, within the overall guidelines, to the situation; balance the varying requirements to ensure the shutdown occurs with maximum safety to personnel, plant, the environment and the business's productivity (in that order); and coordinate all personnel involved in the shutdown to ensure it happens in as orderly a fashion as possible and that the plant is left in the best condition possible for a quick restart.

This unit of competency does not apply to individual plant operators shutting down individual production units or following directions during a shutdown; these are included in the unit of competency for operating a particular production unit.

The individual will be liaising and communicating with all internal and external stakeholders.

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 | Manage shutdown | 1.1 | Check and verify safety systems to ensure that the unit has been made safe |
|---|------------------------|-----|--|

	sequence	1.2	Identify the reason for, or cause of, the shutdown by troubleshooting the system and by utilising all available data and information systems
		1.3	Obtain confirmation of the identified shutdown from field-based operators to verify both the nature and the reliability of the shutdown
		1.4	Rectify or initiate procedures to rectify the fault or shutdown cause through either repair of the operational fault or readjustment before returning the system to start-up status
2	Conduct start-up process	2.1	Satisfy all start-up permissives prior to start-up process being commenced
		2.2	Identify hazards and check that hazard controls are operational and effective
		2.3	Conduct start-up according to procedures and in a safe and efficient manner, ensuring a return to steady state operation is achieved
3	Document shutdown and start-up process	3.1	Complete all logs and workplace documentation relating to the shutdown/start-up process, ensuring all details, actions and responses are accurately recorded
		3.2	Record any further ongoing production problems and report to appropriate persons or authority

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.

Hazards Hazards include one or more of the following:

- electricity
- gases and liquids under pressure
- structural hazards
- structural collapse
- equipment failures
- industrial (machinery, equipment and product)
- equipment or product mass
- noise, rotational equipment or vibration
- plant services (steam, condensate and cooling water)
- working at heights, in restricted or confined spaces, or in environments subjected to heat, dusts or vapours
- flammability and explosivity
- hazardous products and materials
- unauthorised personnel
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- extreme weather
- other hazards that might arise

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

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMAOPS411B Manage plant shutdown and restart

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 PMAOPS411 Manage plant shutdown and restart

Modification History

Release 1. Supersedes and is equivalent to PMAOPS411B Manage plant shutdown and restart

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:

- interpret and analyse data to decide on type of shutdown required
- plan for efficient shutdown to:
 - cold
 - warm
 - hot
- use data to identify reason for/cause of shutdown and determine action to be taken
- select and apply procedures for planned and unplanned start-up/shutdown
- ensure all safety, permit and system preparations are in place as required for shutdown and start-up
- identify hazards and risks and apply risk control procedures.

Knowledge Evidence

- Evidence must be provided that demonstrates knowledge of:
- shutdown/start-up philosophy and procedures
- correct methods of starting, stopping, operating and controlling process
- emergency shutdown (ESD) procedures
- required state of plant and equipment to allow for a restart
- 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 based on a holistic assessment of the evidence.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operations

- will typically include a supervisor/third-party report focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
- must include the use of an industrial plant allowing demonstration of shutdown and restart
- may use industry-based simulation for all or part of the unit particularly where safety, lack of opportunity or significant cost is an issue.
- Assessment should occur in operational workplace situations. Where this is not possible, or where personal safety or environmental damage are limiting factors, assessment must occur in 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.
- Assessment in a simulated environment should use evidence collected from one or more of:
 - walk-throughs
 - demonstration of skills
 - industry-based case studies/scenarios
 - 'what ifs'.
- Knowledge evidence may be collected concurrently with performance evidence (provided a record is kept) 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.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>