



Australian Government

MSS405082 Adapt a proactive maintenance strategy to the process operations sector

Release: 1

MSS405082 Adapt a proactive maintenance strategy to the process operations sector

Modification History

Not applicable.

Application

This unit of competency covers the skills and knowledge required to develop and apply a proactive maintenance strategy for continuous manufacturing processes which may also be major hazard facilities or similar.

This unit applies to an individual in a continuous manufacturing sector, such as chemical, hydrocarbons and refining, smelting and cement, which is seeking to improve the efficiency and reliability of equipment. Typically such an organisation will also be engaged in implementing competitive systems and practices. As continuous manufacturers, such as the chemical, hydrocarbons and refining sectors, are often also major hazard facilities this will influence the proactive maintenance choices which need to be made.

The unit covers the selection of appropriate strategies, techniques and tools and the adapting of them to the organisation's needs. It also covers the application of the strategies to new areas and the improvement of operation in existing areas. This would typically be done in a team environment and in consultation with all key stakeholders.

This unit requires the application of skills associated with problem solving, initiative, enterprise, planning and organising in order to adapt a proactive maintenance strategy to meet specific needs of the enterprise. This work is done in the context of using computer technology and also requires aspects of self-management and learning to ensure improvement of own performance.

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

Pre-requisite Unit

Nil

Competency Field

Competitive systems and practices

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.

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| 1 | Interpret proactive maintenance strategy | 1.1 Analyse proactive maintenance strategy. |
| | | 1.2 Identify areas which may conflict with hazard or operations requirements. |
| | | 1.3 Analyse data arising from incident reports (and similar) for maintenance implications. |
| | | 1.4 Compile hazard control implications for proactive maintenance strategy. |
| | | |
| 2 | Interpret hazard information | 2.1 Analyse hazard and operability studies (HAZOP) (or similar) data for maintenance implications. |
| | | 2.2 Analyse safety case (or similar) data for maintenance implications. |
| | | 2.3 Compile hazard control implications for proactive maintenance strategy. |
| | | |
| 3 | Identify shutdown/turnaround cycle requirements | 3.1 Determine when the next shutdown is due and the expected time between shutdowns. |
| | | 3.2 Identify plant items/maintenance activities which can only be completed during a shutdown. |
| | | 3.3 Identify critical conditions which must not be breached in order to maintain plant reliability until shutdown. |
| | | 3.4 Compile shutdown cycle requirements for proactive maintenance strategy. |
| | | |
| 4 | Identify maintenance requirements of ancillary equipment | 4.1 Identify proactive maintenance requirements of ancillary equipment. |
| | | 4.2 Identify maintenance which can only be done when the plant is shut down. |
| | | 4.3 Compile ancillary equipment requirements for proactive |

maintenance strategy.

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| 5 | Adapt proactive maintenance strategy | 5.1 | Compare identified requirements to the proactive maintenance strategy. |
| | | 5.2 | Negotiate a proactive maintenance strategy which meets these requirements. |
| | | 5.3 | Involve team members in relating identified problems and opportunities for improvement to the maintenance strategy, and involve them in developing any required changes to ensure awareness, learning and commitment. |
| | | 5.4 | Monitor the implementation of the strategy to ensure the identified requirements are met. |
| | | 5.5 | Make required adjustments and arrange for strategy review. |

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.

Competitive systems and practices include one or more of:

- lean operations
- agile operations
- preventative and predictive maintenance approaches
- statistical process control systems, including six sigma and three sigma
- Just in Time (JIT), kanban and other pull-related operations control systems
- supply, value, and demand chain monitoring and analysis
- 5S
- continuous improvement (kaizen)

- breakthrough improvement (kaizen blitz)
- cause/effect diagrams
- overall equipment effectiveness (OEE)
- takt time
- process mapping
- problem solving
- run charts
- standard procedures
- current reality tree.

**Ancillary
equipment includes
one or more of:**

- boilers
- utilities
- plants
- waste treatment and hazard control equipment (e.g. fire ring mains, fire monitors, steam curtains, gas (or other loss of containment) monitors, blast protection and flare stacks).

Unit Mapping Information

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS405082 Adapt a proactive maintenance strategy to the process operations sector

Modification History

Not applicable.

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, for one (1) or more continuous manufacturing processes/areas, to:

- analyse hazards and risks and determine implications for proactive maintenance strategies
- consider a variety of proactive maintenance strategies for suitability to an organisation
- consult operators, maintenance, management and other stakeholders in decisions on proactive maintenance strategies
- monitor implementation of selected proactive maintenance strategies and make appropriate adjustments.

Knowledge Evidence

Must provide evidence that demonstrates sufficient knowledge to interact with relevant personnel and be able to adapt a proactive maintenance strategy, including knowledge of:

- continuous manufacturing equipment and products of the organisation
- start-up, shutdown and isolation considerations for the organisation
- skills required by operators and maintenance personnel to achieve effective proactive maintenance strategy implementation
- characteristics and strengths of different types of strategies, techniques and tools
- holistic costs of different strategies combining cost of maintenance with costs of lost production, sales, and so on, as relevant to the organisation
- business goals sufficient to match the strategy to the business needs
- strategic thinking and its application to proactive maintenance
- principles of process equipment and how to improve its reliability
- resources required and how to obtain them.

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 where proactive maintenance strategies are being applied to new areas and/or for the improvement of operation in existing areas in an operational continuous manufacturing workplace.
- 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.
- 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.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with an organisation providing relevant environmental monitoring, management or technology services about performing the competency being assessed within the last twelve months.

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