



Australian Government

MSMOPS400 Optimise process/plant area

Release: 1

MSMOPS400 Optimise process/plant area

Modification History

Release 1. Supersedes and is equivalent to MSAPMOPS400A Optimise process/plant area

Application

This unit of competency covers the skills and knowledge required to optimise the process performance of a complete process, plant area or system. It requires optimising a more significant portion of a plant than would be required for one of the PMAOPS3## series. It also requires a more strategic approach to the optimisation than the routine, day-to-day optimisation undertaken as a routine part of plant operation. The optimisation may, or may not involve capital expenditure.

It includes ensuring that the process/plant area complies with health, safety and environment (HSE) requirements, that process, plant and equipment improvement is planned and carried out, and that problems are solved to meet operational needs and ensure that production of finished goods meets customer requirements. It includes all items of equipment and unit operations which form part of the production process of a complete area.

This unit of competency requires the application of detailed operational and process knowledge, including the principles of operation of equipment, and the chemistry and/or physics and/or biology/biochemistry of changes to materials occurring during processing. It embodies a significant breadth and depth of technical knowledge and process understanding which is applied to process improvement.

This competency is typically performed by a senior operator, team leader or frontline manager.

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 | Analyse and evaluate current plant, equipment and processes | 1.1 | Compare actual process, plant and equipment performance with requirements and/or historical data/records and/or design performance |
| | | 1.2 | Identify abnormal or sub-optimal process, plant and equipment performance |
| | | 1.3 | Identify hazards associated with the plant and equipment |
| | | 1.4 | Collect and evaluate product, materials and/or process records to determine possible causes for sub-optimal performance |
| | | 1.5 | Use appropriate techniques to rank possible causes from most to least probable cause |
| 2 | Develop plan for corrective and/or optimisation action | 2.1 | Analyse causes to determine appropriate corrective action |
| | | 2.2 | Predict the impact of a change in one unit/area on other related plant units/areas |
| | | 2.3 | Predict the impact of a change on HSE performance |
| | | 2.4 | Develop measurable objectives and evaluate alternatives |
| | | 2.5 | Identify requirements to implement change |
| | | 2.6 | Consult with stakeholders regarding planned changes and impacts |
| | | 2.7 | Develop optimisation plan taking account of hazards identified and HSE implications and communicate to appropriate personnel |
| | | 2.8 | Evaluate optimisation action to determine measures of effectiveness |
| 3 | Coordinate corrective and/ or optimisation action plan | 3.1 | Coordinate all appropriate unit areas and operations in order to rectify problem causes in process, plant and equipment performance |
| | | 3.2 | Initiate and/or implement all required corrective/optimisation actions |

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| | | 3.3 | Communicate corrective/optimisation outcomes to all relevant personnel |
| | | 3.4 | Record and maintain log of all relevant information |
| 4 | Develop continuous improvement strategies | 4.1 | Identify opportunities to continuously improve performance of process/plant area |
| | | 4.2 | Develop recommendations for continual improvement of process, plant and equipment effectiveness |
| | | 4.3 | Consult with appropriate personnel and implement continuous improvement strategies |
| | | 4.4 | Document implementation of continuous improvement strategies |

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 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, and include one or more of the following:

- equipment start-up, operation and shutdown procedures
- calibration and maintenance schedules
- quality manuals and procedures
- organisation recording and reporting procedures
- material, production and product specifications
- 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

Process optimisation Process optimisation requires application of detailed operational and process knowledge to address one or more of the following:

- starting material quality
- yield maximisation
- throughput maximisation
- energy efficiency
- use of utilities
- labour utilisation
- overall cost
- efficient use of equipment
- reducing downtime
- minimisation of waste and rework
- improved workplace layout and work flow

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSAPMOPS400A Optimise process/plant area

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

Assessment Requirements for MSMOPS400 Optimise process/plant area

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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:

- identify and interpret information from a range of internal and external sources
- use analytical techniques to identify cause of a complex problem
- determine corrective actions to optimise the condition of the process, plant and equipment
- plan and coordinate corrective/optimisation actions and related changes that may be required
- develop written plans
- complete documentation
- identify and control hazards by applying the hierarchy of control as part of the optimisation process
- distinguish between:
 - optimum and marginal performance of the plant
 - effective and marginal performance corrections and actions
- communicate and consult with stakeholders at all levels
- read and interpret technical information and relevant regulatory requirements
- develop and implement continuous improvement strategies.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- hazards that may arise in the job/work environment, including:
 - their possible causes
 - potential consequences
 - appropriate risk controls
- relevant technical theory of the plant area
- an in depth understanding of plant and process across the entire plant area being optimised
- process parameters and limits, including:
 - temperature
 - pressure
 - flow
 - pH
- effects of variations in process conditions and materials

- functions and principles of operation of equipment in the production process
- chemistry and/or physics and/or biology/biochemistry relevant to changes to materials during processing.

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.
- It is desirable that this evidence comes from implemented optimisation projects. However, where the project does not receive sanction to be implemented, or is otherwise not implemented, then sufficient evidence may be able to be obtained from a detailed implementation plan and a simulated implementation.
- 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 occur in operational workplace situations. Where this is not possible, or practical, 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.
- 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.
- As a minimum, assessors must satisfy the Standards for Registered Training Organisations 2015 assessor requirements

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