



Australian Government

PMAOPS520 Manage utilities

Release: 1

PMAOPS520 Manage utilities

Modification History

Release 1. Supersedes and is equivalent to PMAOPS520C Manage utilities

Application

This unit of competency covers the skills and knowledge required to manage utilities used by a whole site or group of plants in order to improve the efficiency of usage. It applies to utilities, such as:

- steam (saturated and/or superheated)
- air (instrument, safety, process and/or mechanical)
- water (cooling and/or process)
- fuel (gas and oil)
- other heating/cooling mediums (oil, 'Dowtherm' and brine)
- electricity
- other reticulated utilities.

The utilities will typically be centrally produced and/or controlled.

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 determine utilities requirements and actual consumption, compare actual to theoretical consumption, and initiate actions which will lead to a more efficient use of these utilities.

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 source and use of all utilities on plant | <div>1.1 Obtain current services diagram or schematic for plant</div> <div>1.2 Identify all items of equipment using utilities</div> <div>1.3 Identify source of each utility</div> <div>1.4 Identify utility properties (e.g. pressure, voltage, current) as supplied</div> <div>1.5 Determine required utility properties (e.g. from engineering specification) for each item of equipment using each utility</div> |
| 2 | Determine actual consumption of utilities | <div>2.1 Get information showing consumption of utilities by the plant and plant equipment</div> <div>2.2 Get information showing actual utility properties as used by each plant item</div> <div>2.3 Physically check each item of equipment for signs of inefficient utility use (e.g. faulty steam traps and leaks)</div> <div>2.4 Compile report/database showing actual usage of utilities and observed problems</div> |
| 3 | Determine efficiency of use | <div>3.1 Determine theoretical consumption of utilities for equipment items from engineering specifications, by calculation or other methods</div> <div>3.2 Compare actual consumption of utilities with theoretical consumption</div> <div>3.3 Determine inefficient users of utilities</div> <div>3.4 Compile report/database showing efficiency of use of utilities</div> |
| 4 | Take required action to improve utility efficiency | <div>4.1 Rank inefficient users in priority order for remediation based on costs and business requirements</div> <div>4.2 Investigate and determine causes of inefficiency in the higher ranked users</div> <div>4.3 Develop plans to remove the causes of inefficiency</div> |

- 4.4 Identify any health, safety and environmental (HSE) implications of planned actions and address prior to any implementation of changes
- 4.5 Consult with relevant stakeholders regarding HSE implications and the implementation of these plans
- 4.6 Initiate appropriate action for items within scope of authority
- 4.7 Follow through on items to facilitate a timely completion
- 4.8 Report/make recommendations on required improvements which are beyond scope of authority to action

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:

- heat
- electricity
- fluids under pressure
- plant services (steam, condensate and cooling water)
- flammability and explosivity
- hazardous products and materials
- unauthorised usage
- 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 PMAOPS520C Manage utilities

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 PMAOPS520 Manage utilities

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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:

- analyse and interpret schematics, technical information, performance data and operational practices to determine actual and theoretical consumption of utilities for the site/plant being examined
- isolate the causes of problems and to be able to distinguish between causes of problems/alarm/fault indications, such as:
 - poor/inappropriate quality supply of utility
 - equipment failure (e.g. faulty steam trap and fouled heat exchanger)
 - operational problem (inappropriate usage pattern of utility)
- set priorities for action that take into consideration factors, including plant key performance indicators, health, safety and environmental (HSE) implications, the hierarchy of control, options for simple/quick solutions versus those requiring a capital project and other relevant business factors
- develop plans to improve utility efficiency
- communicate and consult effectively with internal and external stakeholders.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- methods for calculating theoretical consumption
- plant equipment, its characteristics and limitations
- problem isolation techniques
- problem analysis techniques
- usage of utilities by plants and equipment
- requirements for utilities, properties, usage patterns and supply
- typical causes of inefficiencies at the plant or equipment and possible solutions
- systems operating parameters and system integrity limits.

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.
- It is not necessary for the recommended improvements in utility efficiency to be complete for the purposes of this unit.
- 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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