



Australian Government

MEM13007 Maintain water treatment systems for cooling towers

Release: 1

MEM13007 Maintain water treatment systems for cooling towers

Modification History

Release 1. Supersedes and is equivalent to MEM13007B Maintain water treatment systems for cooling towers

Application

This unit of competency defines the skills and knowledge required to test water treatment as specified by AS/NZS 3666:2011 Air-handling and water systems of buildings, or equivalent, measure water properties, and maintains reticulation/treatment systems.

Where interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

Where the selection and use of engineering measurement is required unit MEM12023 Perform engineering measurements should also be selected.

Where the selection and use of power tools/hand held operations is required unit MEM18002 Use power tools/hand held operations should also be selected.

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

Band: A

Unit Weight: 2

Pre-requisite Unit

MEM11011	Undertake manual handling
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM18001	Use hand tools

Competency Field

Work health and safety

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	Determine job requirements	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times
		1.3	Use appropriate personal protective equipment (PPE) in accordance with SOPs
		1.4	Identify job requirements from specifications, job sheets or work instructions
2	Apply principles of AS/NZS 3666:2011 Air-handling and water systems of buildings, or equivalent	2.1	Explain causes of corrosion, scale, algae and treatment/prevention
		2.2	Explain air distribution of cooling towers
3	Assess reticulation system	3.1	Assess relevant water conditions against specifications using test equipment according to SOPs
		3.2	Assess condition of water circulation system and determine appropriate action
		3.3	Assess performance of regulating, filtering, conditioning/dosing and pumping systems against specification
4	Measure relevant water properties	4.1	Use and apply test equipment according to SOPs
		4.2	Determine/record water properties
5	Maintain reticulation/treatment systems	5.1	Record water temperature control system and report non-compliances
		5.2	Adjust dosing to specification
		5.3	Report faults to appropriate personnel according to SOPs

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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.

Relevant water conditions include one (1) or more of the following:

- acidity
- alkalinity
- microbial
- corrosion

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM13007B Maintain water treatment systems for cooling towers

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM13007 Maintain water treatment systems for cooling towers

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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 on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, charts and other applicable reference documents in maintaining water treatment systems for cooling towers
- assessing relevant water conditions against specifications
- testing the condition of the water in the cooling tower/treatment system and determining appropriate action
- testing dosing components for correct operation/performance
- testing water properties using appropriate techniques and equipment and checking for compliance to specifications
- determining and recording test results and adjusting dosing flow in the system to specification
- reporting system faults to appropriate personnel.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- causes of corrosion, scale and algae
- methods of treating/preventing occurrence of corrosion, scale and/or algae in water cooling towers and treatment systems
- air flow patterns of cooling towers
- testing requirements of AS/NZS 3666:2011 Air-handling and water systems of buildings, and/or other relevant regulations relating to water cooling towers
- precautions for preventing contamination of systems by Legionella bacteria
- procedures for testing the condition of the water in the cooling tower
- specifications of the water condition
- variations of the test results from specification and procedures to be followed when water condition varies from specification

- correct operation/performance of the following system components: regulators, filters, conditioners and pumps related to treatment systems
- performance tests for treatment system components
- water properties to be tested and procedures for testing water properties
- test equipment and techniques
- water temperature specifications
- procedures for reporting system faults
- codes and regulations relevant to maintaining water treatment systems.

Assessment Conditions

- Assessors must:
 - have vocational competency in maintaining water treatment systems for cooling towers at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires
- Where possible assessment must 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 that reflects 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
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications
- 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.

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