



Australian Government

NWPTRT065 Assess and improve treatment for removal of microorganisms in drinking water and recycled water

Release: 1

NWPTRT065 Assess and improve treatment for removal of microorganisms in drinking water and recycled water

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve treatment for removal of microorganisms in drinking water and recycled water.

It includes identifying microorganisms and assessing the appropriate drinking water or recycled water treatment processes for inactivation or removal.

This unit applies to those working as water treatment operators responsible for water quality in a range of technical and process applications in drinking water and recycled water treatment. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

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

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Assess performance of processes to remove or

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify microorganisms in water source to assess

inactivate microorganisms	potential operational impacts
	1.2 Review existing process performance data according to regulatory or workplace requirements
	1.3 Review existing operational processes with reference to manufacturer and plant design specifications
	1.4 Identify the impact of raw water quality on treatment effectiveness for microorganism removal
	1.5 Identify and respond to faults and other relevant plant asset performance information according to workplace procedures
	1.6 Monitor the operational status of plant components and maintenance schedule
	1.7 Investigate the cause of treated water quality issues relating to microorganisms
	1.8 Assess the effectiveness of process control strategies for microorganism removal or inactivation
2 Improve process performance for removal of microorganisms	2.1 Identify treatment process conditions for optimising microorganism removal
	2.2 Determine plant configuration and revised operational processes for process optimisation
	2.3 Plan a trial to test the performance of the determined optimisation options
	2.4 Identify hazards, assess risks and control measures according to workplace procedures
3 Report on system performance and improvement	3.1 Report on the current operational status of the water treatment process according to workplace procedures
	3.2 Report on effective treatment processes and associated sampling and testing procedures to maintain water quality
	3.3 Compile a report making recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT051 Assess and improve treatment for pathogen removal.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT065 Assess and improve treatment for removal of microorganisms in drinking water and recycled water

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing general characteristics caused by waterborne microorganisms
- analysing types of problems caused by waterborne microorganisms
- assessing and recommending water or re-use treatment processes for physically removing or deactivating pathogenic microorganisms
- assessing causes of nuisance and toxicity problems
- assessing fault reports and investigating current operational status of processes for microorganism removal
- assessing process performance and applying process adjustments according to workplace procedures
- identifying a range of waterborne microorganisms
- identifying and responding to risks and hazards
- identifying data deficiencies and additional data collection through sampling and testing
- identifying pathogenic microorganisms and the diseases they cause
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- optimising the treatment process to mitigate at least one of the following impacts of microorganisms including:
 - algal toxins
 - disinfection by-products
 - pathogens
 - regrowth, nitrification and disinfection failure
 - taste and odour compounds
- planning trials to test the performance of the treatment optimisation options for

microorganism removal

- preparing recommendation reports
- preparing reports on the optimum treatment for a range of microorganisms
- reviewing existing process barrier performance with reference to historical data, differences in raw water quality and plant configuration
- selecting pre- or post-treatment processes for removing the causes of nuisance and toxicity problems

Knowledge Evidence

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

- Ct concept for disinfection (concentration of disinfectant x time of contact)
- log removal value concept for physical barriers
- nuisance problems caused by waterborne microorganisms
- principles of water or re-use treatment processes
- properties and modes of action for physical barriers
- properties and modes of action of disinfectants
- raw water sources and composition
- relevant legislation, industry standards and workplace policies and procedures relating directly to the control and treatment of waterborne microorganisms
- risk and hazard management principles
- toxicity and pathogenic problems caused by waterborne microorganisms types, lifecycle and characteristics of waterborne microorganisms
- workplace reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

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.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace

procedures and operation manuals.

Links

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