

Title	Demonstrate knowledge of pathogens, diseases, and their control in water treatment		
Level	3	Credits	5

Purpose	People credited with this unit standard are able to demonstrate knowledge of: pathogens and water-borne diseases; the use of testing for indicator organisms for water quality monitoring; and risk management in relation to transmission of water borne disease in water treatment.
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Classification	Water Industry > Water - Generic
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Available grade	Achieved
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Explanatory notes

- 1 Legislation relevant to this unit standard includes the Health Act 1956, Health and Safety at Work Act 2015, and Hazardous Substances and New Organisms Act 1996, and subsequent amendments.
- 2 Definition
Organisational procedures – instructions to staff, and procedures which are documented in memo or manual format and are available in the workplace. These requirements include but are not limited to – site specific requirements, manufacturers' specifications, product quality specifications, and legislative or regulatory requirements.
Small drinking-water supply – a drinking-water supply servicing up to 500 people; and which includes catchment, source, treatment, and reticulation.
- 3 Assessment for this unit standard should be contextualised to the candidate's own workplace. For those working with small drinking-water supplies, plant may include the reticulation system.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of pathogens and water-borne diseases.

Evidence requirements

- 1.1 Pathogens are described in terms of their impact on human health.
- 1.2 Pathogens are described in terms of their microbiological classification.

Range helminths, protozoa, bacteria, viruses, algae.

1.3 The cause and general symptoms of water-borne diseases are described in terms of the pathogen and significance of the disease.

Range includes but is not limited to – gastro-enteritis, salmonella, *E. coli*, typhoid, polio, giardiasis, cryptosporidiosis, hepatitis, campylobacter.

Outcome 2

Demonstrate knowledge of the use of testing for indicator organisms for water quality monitoring.

Range sample collection location, use of results, sampling procedures.

Evidence requirements

2.1 Water quality monitoring is described in terms of the use of faecal coliform and/or *E. Coli* testing as an indicator of potential contamination.

2.2 Water quality monitoring is described in terms of the use of heterotrophic plate count testing as an indicator of general pollution.

Outcome 3

Demonstrate knowledge of risk management in relation to transmission of water borne disease in water treatment.

Evidence requirements

3.1 The opportunities for contamination and risk reduction during drinking-water abstraction and storage are described in terms of water quality risks and methods to reduce these risks.

3.2 The opportunities for contamination and risk reduction during drinking-water treatment operations and maintenance are described in terms of water quality risks and methods to reduce these risks.

3.3 The opportunities for contamination and risk reduction during wastewater treatment operations and maintenance are described in terms of risks associated with wastewater and methods to reduce these risks.

3.4 Preventive practices for personnel are described in terms of personal health risks and methods to reduce these risks in accordance with organisational procedures.

3.5 Hygiene procedures are described for staff maintaining both water and wastewater treatment systems in accordance with organisational procedures.

Range personal, equipment.

Planned review date	31 December 2021
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	16 March 2017	N/A

Consent and Moderation Requirements (CMR) reference	0101
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact the Infrastructure Industry Training Organisation qualifications@connexis.org.nz if you wish to suggest changes to the content of this unit standard.