

<b>Title</b>	<b>Describe pathogens, diseases, and their control in water treatment</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>5</b>

<b>Purpose</b>	People credited with this unit standard are able to describe: pathogens and water-borne diseases in water treatment; 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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<b>Classification</b>	Water Industry > Water - Generic
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<b>Available grade</b>	Achieved
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### Guidance Information

- Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable legislative and industry requirements.
- Legislation relevant to this unit standard includes: Health and Safety at Work Act 2015, Water Services Act 2021, Hazardous Substances and New Organisms Act 1996, Health and Safety at Work (Hazardous Substances) Regulations 2017, and subsequent amendments.
- Definition  
*Industry requirements* include manufacturers' specifications; and enterprise requirements which may include documented workplace policies, procedures, specifications, business, and quality management requirements relevant to the workplace in which assessment is carried out.
- Learning and assessment activities for this unit standard must be informed by *Te Mana o te Wai* (refer to [Taumata Arowai](#)) and the *National Policy Statement for Freshwater Management 2020* available from <https://environment.govt.nz/>.

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### Outcomes and performance criteria

#### Outcome 1

Describe pathogens and water-borne diseases in water treatment.

#### Performance criteria

- 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

Describe the use of testing for indicator organisms for water quality monitoring.

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

### Performance criteria

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

Describe risk management in relation to transmission of water-borne disease in water treatment.

### Performance criteria

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 Preventative practices for personnel are described in terms of personal health risks and methods to reduce these risks.

3.5 Hygiene procedures are described for staff maintaining both drinking-water and wastewater treatment systems.

Range personal, equipment.

<b>Planned review date</b>	31 December 2026
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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	31 December 2024
Review	2	24 February 2022	N/A

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

#### Comments on this unit standard

Please contact Waihangā Ara Rau Construction and Infrastructure Workforce Development Council at [qualifications@waihanga.nz](mailto:qualifications@waihanga.nz) if you wish to suggest changes to the content of this unit standard.