

<b>Title</b>	<b>Demonstrate knowledge of pathogens, diseases, and their control in water services reticulation</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 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 due to maintenance and construction of water services reticulation.
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<b>Classification</b>	Water Industry > Water Reticulation
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<b>Available grade</b>	Achieved
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**Explanatory notes**

- 1 Legislation relevant to this unit standard includes the Health and Safety at Work Act 2015, Hazardous Substances and New Organisms Act 1996, and subsequent amendments.
- 2 Definitions  
*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.  
*Water reticulation* – in this context refers to all pipe systems, pumping systems, and components that contribute to the distribution of water, and collection and disposal of wastewater and stormwater.

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**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.

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.

## Outcome 2

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

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

### 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 due to maintenance and construction of water services reticulation.

### Evidence requirements

3.1 The opportunities for contamination and risk reduction during new pipe line construction are described in terms of water quality risks and methods to reduce these risks.

Range includes but is not limited to – pipe storage, site cleanliness, trench inundation, pipe plugs, flushing, disinfection, water quality testing, personal hygiene.

3.2 The opportunities for contamination and risk reduction during maintenance and emergency repairs are described in terms of water quality risks and methods to reduce these risks.

Range includes but is not limited to – positive water flows, site cleanliness, trench inundation, flushing, disinfection, personal hygiene.

3.3 The opportunities for contamination and risk reduction during sewer maintenance and emergency repairs are described in terms of water quality risks and methods to reduce these risks.

Range includes but is not limited to – protective equipment, site cleanliness, washing, disinfection, personal hygiene.

- 3.4 Standard preventive practices for personnel are described in terms of personal health risks and methods to reduce these risks.

Range includes but is not limited to –inoculation.

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

Range equipment, personal.

<b>Planned review date</b>	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	27 May 2002	31 December 2018
Revision	2	12 February 2003	31 December 2018
Review	3	19 September 2008	31 December 2018
Review	4	16 March 2017	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>.

#### 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](mailto:qualifications@connexis.org.nz) if you wish to suggest changes to the content of this unit standard.