

Title	Demonstrate knowledge of and maintain water quality in drinking-water supply networks		
Level	4	Credits	6

Purpose	People credited with this unit standard are able to: describe the causes and effects of variation in water quality in a drinking-water supply network, and the reasons for water quality monitoring; describe water sampling programmes for drinking-water supply networks; describe the water tests carried out on drinking-water supply networks; identify and isolate water quality problems, implement responses and report findings; and implement hygienic measures to prevent contamination during maintenance and construction, identify further action required, and carry out drinking-water supply sampling.
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Classification	Water Industry > Water Reticulation
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Available grade	Achieved
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Guidance Information

- 1 Legislation and references relevant to this unit standard include:
Health and Safety at Work Act 2015;
Resource Management Act 1991;
NZS 9201.7:2007 *Model general bylaws - Water supply*;
AS/NZS 4020:2005 *Testing of products for use in contact with drinking water*;
NZS 4404:2010 *Land development and subdivision infrastructure*; standards are available from <http://www.standards.govt.nz>;
Guidelines for Drinking-water Quality Management for New Zealand 2015 (2nd edn);
Drinking Water Standards for New Zealand 2005 (Revised 2008), Ministry of Health, Wellington;
Territorial authority requirements.
- 2 Assessment against this unit standard may be carried out using a simulated scenario.
- 3 Assessment against this unit standard must take place in a workplace environment. Assessment parameters will depend on site-specific equipment, procedures, and practices. Practices must reflect industry best practice and comply with legislative requirements.
- 4 Definitions
Company requirements include the policy, procedures, and methodologies of the company. They include legislative and regulatory requirements applicable to the company or a specific site. Requirements are documented in the company's health

and safety plans, traffic management plans, contract work programmes, quality assurance programmes, policies, and procedural documents.

Contract specifications include plans, diagrams, and special technical conditions. They do not include special administrative conditions.

Outcomes and performance criteria

Outcome 1

Describe the causes and effects of variation in water quality in a drinking-water supply network, and the reasons for water quality monitoring.

Performance criteria

- 1.1 Variations in water quality as indicated by the presence of helminths, protozoa, bacteria, and viruses are described in terms of the causes.
- 1.2 The presence of microbes in the water supply is described in terms of the effects on human beings.
- 1.3 Causes of variations in water quality are described in terms of their effect on water.
- 1.4 Water quality monitoring is described in terms of the reasons for its requirement.

Outcome 2

Describe water sampling programmes for drinking-water supply networks.

Performance criteria

- 2.1 Requirements for water sampling programmes relevant to asset owners are described in accordance with the *Drinking Water Standards for New Zealand*.
- 2.2 Frequency and location of sampling are described in accordance with contract specifications.
- 2.3 The procedures for investigating causes of, and responses to, reported transgressions from the requirements of the *Drinking Water Standards for New Zealand* are described in accordance with company requirements.

Outcome 3

Describe the water tests carried out on drinking-water supply networks.

Performance criteria

- 3.1 Water tests are described in terms of the reasons they are carried out and the implications of levels achieved.

Range bacteriological, aesthetics, chemical.

- 3.2 Water tests are described in terms of the implications to the asset owner of non-compliance with guideline values and maximum acceptable values.

Outcome 4

Identify water quality problems, implement responses and report findings.

Performance criteria

- 4.1 The nature of the water quality problem is determined by observation or customer reporting.
- 4.2 The cause of the problem is identified and actioned in accordance with company requirements.
- 4.3 Any need for water sampling is identified, and required further action is determined, in accordance with the nature and cause of the problem.
- 4.4 Findings are reported in accordance with company and water supplier's requirements.

Outcome 5

Implement hygienic measures to prevent contamination during maintenance or construction, identify further action required, and carry out drinking-water supply sampling.

Performance criteria

- 5.1 Hygienic procedures while carrying out maintenance or construction work are implemented to prevent contamination in accordance with contract specifications and company requirements.
- 5.2 Duty of care is implemented to maintain pipe system integrity in accordance with company requirements.
- 5.3 Disinfection practices during maintenance or construction works are implemented in accordance with contract specifications and company requirements.
- 5.4 Any need for further maintenance and monitoring, and additional action, is identified in accordance with contract specifications and company requirements.
- 5.5 Sampling and testing is arranged during maintenance or construction work in accordance with contract specifications and company requirements.
- 5.6 Testing for free chlorine on-site is arranged in accordance with company requirements.

Replacement information	This unit standard replaced unit standards 22105 and unit standard 22106.
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Planned review date	31 December 2023
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	29 November 2018	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>.

Comments on this unit standard

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