

<b>Title</b>	<b>Manage drinking-water reticulation systems and critical control points</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>8</b>

<b>Purpose</b>	<p>People credited with this unit standard are able to: identify and manage the factors that affect the risk of drinking-water supply contamination due to construction and maintenance of drinking-water reservoirs and the reticulation system; identify and manage the procedures for taking a drinking-water reticulation main out of service, cleaning it, disinfecting it, and putting it back into service; and identify critical control points and hazards, and identify and manage preventive and corrective actions, of water reticulation systems.</p>
----------------	--

<b>Classification</b>	Water Industry > Water Reticulation
-----------------------	-------------------------------------

<b>Available grade</b>	Achieved
------------------------	----------

**Explanatory notes**

- 1 Legislation and references relevant to this unit standard include: Health Act 1956, and subsequent amendments;  
*Drinking-Water Standards for New Zealand, 2005 (Revised 2008)*. Ministry of Health, Wellington.
- 2 Definitions  
*Critical control point* – specific point, procedure, or step in water treatment processes at which control can be exercised to reduce, eliminate, or prevent the possibility of a public health hazard.  
*Drinking-water supply* – the supply catchment, treatment plant, and distribution including tankers. The drinking-water supplier has responsibility for managing the public health risks of the drinking-water supply.  
*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.

**Outcomes and evidence requirements**

**Outcome 1**

Identify and manage the factors that affect the risk of drinking-water supply contamination due to construction and maintenance of reservoirs and the reticulation system.

**Evidence requirements**

- 1.1 The potential sources of poor drinking-water quality are identified and managed in terms of reticulation problem areas.
- Range includes but is not limited to – low pressure areas, long detention times, chlorine levels and forms, dead ends, 'dead spots', flushing.
- 1.2 The causes and impacts of corrosion and hard water are identified and managed in terms of the chemistry of the water.
- Range may include but is not limited to – pH levels, hardness and alkalinity, metal corrosion, asbestos corrosion, hard water impacts, treatment options and costs.
- 1.3 The opportunities for contamination during maintenance are identified and managed 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, pigging, disinfection, air scouring.
- 1.4 The opportunities for contamination due to inadequate reservoir maintenance or security are identified and managed 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, construction and security requirements.
- 1.5 The vaccination measures for personnel, and exclusion from drinking-water work are managed in terms of health risks, and methods to reduce these risks.
- 1.6 The hazards and causes of backflow, and methods of prevention in drinking-water reticulation systems are identified and managed in terms of the strengths and limitations of prevention methods.

**Outcome 2**

Identify and manage the procedures for taking a drinking-water reticulation main out of service, cleaning it, disinfecting it, and putting it back into service.

**Evidence requirements**

- 2.1 The timing of the procedure with consideration for safety is identified and managed in accordance with organisational procedures.
- Range may include but is not limited to – safety plan(s) for confined space entry, trench safety, traffic, excess height access, hazardous chemicals use.

- 2.2 The procedures for mains shut-down and draining a water supply are identified in accordance with organisational procedures.
- 2.3 The procedures for repair and flushing mains leading to or directly from a reservoir or treatment plant are identified in accordance with organisational procedures.
- 2.4 Chlorine application is managed in accordance with organisational procedures and Water Safety Plan.
- Range includes but is not limited to – method, dose levels, times, test measurements, methods of disposal of chlorinated water in an environmentally acceptable manner.
- 2.5 The procedure for mains refill, water quality check, and mains put back into service is managed in accordance with organisational procedures.

### Outcome 3

Identify critical control points and hazards, and identify and manage preventive and corrective actions, of water reticulation systems.

Range one of – piped reticulation systems, service reservoirs.

### Evidence requirements

- 3.1 The critical control points in water reticulation systems are identified in accordance with organisational procedures.
- 3.2 The hazards at each critical control point are identified in terms of the causes of the events leading to their occurrence, and the risk level.
- 3.3 The preventive and corrective actions for persistent problems or events related to each hazard are identified and managed in accordance with organisational procedures.

<b>Planned review date</b>	31 December 2021
----------------------------	------------------

### 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
--	------

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.