

Title	Describe and operate chlorine disinfection processes in drinking-water treatment		
Level	4	Credits	12

Purpose	People credited with this unit standard are able to: describe chlorination processes; monitor and adjust the chlorine disinfection process; and carry out maintenance procedures on chlorine disinfection equipment in drinking-water treatment.
----------------	--

Classification	Water Industry > Water Treatment
-----------------------	----------------------------------

Available grade	Achieved
------------------------	----------

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 and references relevant to this unit standard include: Health and Safety at Work Act 2015, Water Services Act 2021, Hazardous Substances and New Organisms (HSNO) Act 1996, and subsequent amendments; Ministry of Health, *Drinking-water Standards for New Zealand*, Ministry of Health, Wellington, 2005 (Revised 2018), and subsequent replacements, available at www.taumataarowai.govt.nz.
- 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](http://www.taumataarowai.govt.nz)) and the *National Policy Statement for Freshwater Management 2020* available from <https://environment.govt.nz/>.

Outcomes and performance criteria

Outcome 1

Describe chlorination processes in drinking-water treatment.

Performance criteria

- 1.1 Regulations and drinking-water standards relevant to chlorination are described in terms of their purpose, requirements, and consequences of non-compliance.
- 1.2 Chlorination theory is described in terms of disinfection of water supplies.
- Range breakpoint, chlorine compounds, residuals, Ct values, pathogen vulnerability, pH effects.
- 1.3 Disinfection of water supplies is described in terms of chlorination methods, and the way in which the chlorine is sourced.
- 1.4 The chlorination process is described in terms of the function of its component parts and identification of process failure.
- 1.5 Chlorination by-products are described in terms of the *Drinking-water Standards for New Zealand*.

Outcome 2

Monitor and adjust the chlorine disinfection process in drinking-water treatment.

Range chlorine residual, chlorine demand, pH, turbidity, contact time, flow rate, temperature.

Performance criteria

- 2.1 Monitoring equipment is calibrated, if required, tests or measurements for monitoring the process are carried out, and results are recorded in accordance with *Drinking-water Standards for New Zealand* compliance requirements.
- 2.2 Process is adjusted.
- Range reasons for adjustment may include – results of monitoring and testing, analysis and identification of trends, response to process failure.
- 2.3 Consumables are checked and ordered.

Outcome 3

Carry out maintenance procedures on chlorine disinfection equipment in drinking-water treatment.

Performance criteria

- 3.1 Preventative maintenance procedures are carried out and recorded.
- 3.2 Any required repairs are carried out according to process and/or equipment failure, and recorded.

3.3 Procedures for maintaining process continuity are carried out.

Replacement information	This unit standard replaced unit standard 24953.
--------------------------------	--

Planned review date	31 December 2027
----------------------------	------------------

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	26 May 2022	N/A

Consent and Moderation Requirements (CMR) reference	0101
--	------

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council at qualifications@WaihangaAraRau.nz if you wish to suggest changes to the content of this unit standard.