

41249**Operate and control filtration processes for drinking water**

Kaupae Level	4
Whiwhinga Credit	15
Whāinga Purpose	This skill standard is for people who work as drinking water treatment operators. People with this skill standard have the skills to operate and control filtration processes to support downstream drinking water treatment processes and compliance with regulatory requirements. This skill standard aligns with the New Zealand Certificate in Drinking Water Treatment Operations (Level 4) with optional strands in Pre-Treatment, Clarification, Coagulation and Flocculation, Non-Chlorine Disinfection, Fluoridation, and Filtration [Ref: 5672], and may also contribute to other water services industry credentials.

Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
1. Operate filtration processes for drinking water treatment.	a. Outline filtration processes used in drinking water treatment in terms of purpose, operating principles, and relevant regulations.
	b. Identify the suitability of filtration processes for treating drinking water.
	c. Operate filtration processes to prepare drinking water for further treatment and to meet operational and compliance requirements.
2. Control filtration processes for drinking water.	a. Perform process tests and measures, and undertake operational observations, to optimise filtration processes to meet operational and compliance requirements.
	b. Interpret monitoring results to identify trends, variations and emerging process issues.
	c. Record monitoring results and operational adjustments, in accordance with operational requirements.

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
3. Maintain filtration plant and equipment.	a. Maintain filtration plant and equipment to ensure optimal process functionality.
	b. Identify and respond to faults or failures in accordance with operational requirements.
	c. Record maintenance, in accordance with operational requirements.

Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

Assessment specifications:

Ākonga must demonstrate that they can safely, consistently, and competently operate and control filtration processes in accordance with operational requirements, and applicable legislative and regulatory requirements.

Assessment for this skill standard must be based on practical performance and supported by evidence that must take place in an operational drinking water treatment environment where filtration processes are in use.

Assessment must cover the full range of filtration processes relevant to this skill standard that are in use at the candidate's workplace.

Evidence must demonstrate consistent performance over time, not one-off tasks.

Definitions

Candidate's workplace (for assessment purposes) means the operational treatment site(s) nominated by the employer as the workplace for assessment, that includes the full range of processes relevant to this assessment standard and to the candidate's expected duties. Where the employer operates multiple treatment sites, the nominated workplace must not be limited to a site with minimal relevant processes where this would prevent evidence being gathered for the full range of processes relevant to this assessment standard.

Operational requirements refer to the documented and embedded ways of working that govern how activities are planned, performed, monitored, and controlled in the workplace to ensure safe, consistent, and compliant operations.

Water services refer to industries responsible for working on or around water supplies, networks, plants, and systems.

Ngā momo whiwhinga | Grades available

Achieved.

Ihirangi waitohu | Indicative content**Filtration principles and process treatment intent**

- Purpose of filtration within a multibarrier treatment approach.
- Mechanisms of removal e.g. particulate removal, adsorption where relevant and factors affecting filter performance.
- Filtration performance concepts e.g. filter run behaviour, breakthrough and turbidity control, validation vs verification where applicable.

Regulatory and risk context

- Relevant legislation, drinking water standards, and quality requirements applicable to filtration.
- Drinking Water Safety Plan (DWSP) context for filtration-related hazards, critical control points, and verification.

Types of filtration and process configuration

- Filtration methods may include granular media, cartridge filter, bag filter, and membrane filters.
- Typical process components and where they sit in the treatment process, including upstream/downstream dependencies.
- Critical control points and failure modes e.g. bypass, short-circuiting, media degradation, membrane integrity issues, inadequate backwash/cleaning, headloss.

Operating parameters and process control

- Key operating parameters relevant to the filtration process used e.g. flow rate, differential pressure and headloss, filter loading, flux where relevant.
- Water quality influences on filtration e.g. turbidity and particles, temperature, organic matter.
- Process control actions to maintain performance and protect downstream treatment.

Monitoring, instrumentation, and verification

- Online instrumentation and alarms/interlocks relevant to filtration processes.
- Routine testing and sampling checks and performance confirmation.
- Interpreting monitoring results to identify trends, variation, and emerging process issues.

Corrective actions, reporting and escalation

- Operational adjustments in response to monitoring results.
- Consequences of failure and response actions, including escalation and reporting requirements.

Maintenance and supporting activities

- Common process faults and causes.
- Adjustment and verification of plant, instruments, and equipment.
- Routine and corrective maintenance.
- Completion of process records and reports to meet operational and compliance requirements.

Rauemi | Resources

Legislation, regulations and/or industry standards relevant to this skill standard include, but are not limited to:

- Drinking Water Safety Planning (DWSP) - <https://www.taumataarowai.govt.nz/drinking-water-suppliers-and-operators/for-drinking-water-suppliers/how-to-guidance/preparing-a-drinking-water-safety-plan>.
- Drinking Water Quality Assurance Rules - [Drinking Water Quality Assurance Rules](#).
- Water Services (Drinking Water Standards for New Zealand) Regulations 2022 - [Water Services \(Drinking Water Standards for New Zealand\) Regulations 2022 \(SL 2022/168\) – New Zealand Legislation](#).
- Water Services Act 2021 - [Water Services Act 2021, Public Act Contents – New Zealand Legislation](#).
- Hazardous Substances and New Organisms Act 1996 - [Hazardous Substances and New Organisms Act 1996 No 30 \(as at 05 April 2025\), Public Act Contents – New Zealand Legislation](#).

Pārongo Whakaū Kounga | Quality assurance information

Ngā rōpū whakatau-paerewa Standard Setting Body	Energy and Infrastructure Industry Skills Board
Whakaritenga Rārangi Paetae Aromatawai DASS classification	Engineering and Technology > Water Industry > Water Treatment
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga CMR	0120

Hātepe Process	Putanga Version	Rā whakaputa Review Date	Rā whakamutunga mō te aromatawai Last date for assessment
Rēhitatanga Registration	1	28 May 2026	N/A
Kōrero whakakapinga Replacement information	N/A		
Rā arotake Planned review date	31 December 2032		

Please contact Energy and Infrastructure Industry Skills Board at qualifications@energyinfra-skills.nz if you wish to suggest changes to the content of this skill standard.