

41224**Operate and control sludge in wastewater treatment**

Kaupae Level	4
Whiwhinga Credit	15
Whāinga Purpose	This skill standard is for people who work as wastewater treatment operators. People with this skill standard have the skills to operate and control sludge and biosolids within wastewater treatment operations to meet required operational, environmental, and regulatory requirements. This skill standard aligns with the New Zealand Certificate in Wastewater Treatment Operations (Level 4) with optional strands in Activated Sludge, Effluent Disinfection, Fixed Growth Reactor, Separation, Sludge Treatment, and Ponds [Ref: 5673] 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 sludge and biosolids wastewater treatment.	a. Outline sludge and biosolids process in terms of purpose, operating principles, and relevant regulations.
	b. Compare the suitability for different plant and equipment configurations.
	a. Operate sludge and biosolids processes to meet operational requirements, and compliance requirements.
2. Control sludge and biosolids wastewater treatment processes.	a. Perform process tests to optimise sludge and biosolids condition and suitability for disposal or reuse.
	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 plant and equipment for sludge and biosolids wastewater treatment processes.	a. Maintain plant and equipment to ensure optimal functionality.
	b. Identify and respond to faults or failures in accordance with operational requirements.
	c. Record maintenance in accordance with operational requirements.
4. Justify sludge and biosolids management options.	a. Justify disposal and reuse options of sludge and biosolids in terms of operational and compliance 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 sludge and wastewater treatment 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 wastewater treatment environment where preliminary wastewater treatment processes are in use.

Assessment must cover the full range of sludge 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.

Sludge refers to sludge and biosolids that are by-products of wastewater treatment.

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**Sludge and biosolids management purpose and requirements**

- Sludge generation and characteristics.
- Reduction of pathogens and volatile solids.
- Moisture content and stabilisation considerations.
- Regulatory and consent drivers for sludge management.

Sludge and biosolids management and disposal options

- Treatment and stabilisation approaches.
- Composting.
- Landfill disposal.
- Incineration.
- Beneficial reuse pathways – New Zealand biosolids guidelines.

Monitoring and process tests

- Selection of tests appropriate to sludge characteristics and disposal pathway.
- Moisture content.
- Organic and inorganic content.
- Toxicity indicators.
- pH.
- Leachate-related considerations.
- Interpretation of results against disposal or reuse criteria.

Maintenance and supporting activities

- Common process faults and causes.
- Adjustment and verification of plant, instruments, and monitoring equipment.
- Routine and corrective maintenance activities.
- Process failure and incident response procedures.
- 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:

- Biosolids Reuse Guidelines - [Guidelines for Beneficial Use of Organic Materials on Productive Land](#) and [Beneficial reuse of biosolids standard | The Water Services Authority - Taumata Arowai](#).
- Water Services Act 2021 - [Water Services Act 2021, Public Act Contents – New Zealand Legislation](#).
- Resource Management Act 1991 - [Acts and Bills | Ministry for the Environment](#).

- Wastewater Standards - [Wastewater standards | The Water Services Authority - Taumata Arowai](#).
- 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](#).
- Health and Safety at Work (Hazardous Substances) Regulations 2017 - [Health and Safety at Work \(Hazardous Substances\) Regulations 2017 \(LI 2017/131\) \(as at 20 October 2025\) Contents – New Zealand Legislation](#).

Pārongo Whakaū Kouna | 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 > Wastewater 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	This skill standard replaced unit standard 29958.		
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.