

41218 Operate and control activated sludge wastewater treatment processes

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 activated sludge processes in wastewater treatment. 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 activated sludge processes in wastewater treatment.	a. Outline activated sludge treatment for the treatment of wastewater in terms of purpose, operating principles, and relevant regulations.
	b. Operate activated sludge processes to meet operational and compliance requirements.
2. Control activated sludge processes in wastewater treatment.	a. Perform process tests and measures, and undertake operational observations to optimise activated sludge 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.
3. Maintain plant and equipment for activated sludge processes.	a. Maintain 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 activated sludge wastewater treatment 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 wastewater treatment environment where activated sludge processes are in use.

Assessment must cover the full range of activated 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.

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**Activated sludge treatment processes**

- Purpose and principles of activated sludge treatment; including stabilisation of pollutants, reduction of contaminants.
- Process objectives and treatment outcomes.
- Activated sludge process components and function.
- Consequences of process failure.
- Process outputs, including volume, contaminants, pollutant stabilisation.
- Suitability of activated sludge processes for different wastewater characteristics.
- Operational parameters influencing process performance.
- Legislative, regulatory, and organisation requirements relevant to activated sludge operations.

Monitoring and process control

- Process tests used to monitor activated sludge performance including: Mixed Liquor Suspended Solids (MLSS), Sludge volume index (SVI), pH and alkalinity, Sludge age, Dissolved Oxygen (DO) control.
- Interpretation of results and process control adjustments.

Maintenance and supporting activities

- Common process faults and causes.
- Adjustment and verification of plant, instruments, and equipment.
- Routine and corrective maintenance.
- Process failure and incident response procedures.
- Coordination of repairs and corrective actions.
- Use of manufacturers' specifications, plant documentation, and organisational 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](#).
- Wastewater Standards – [Wastewater standards | The Water Services Authority - Taumata Arowai](#).
- National Wastewater Environmental Performance Standards – [Discussion-document-National-wastewater-environmental-performance-standards-FINAL.pdf](#).

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 > 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 29930.		
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.