

Field Engineering and Technology**Review and change of standard-setting responsibility of *Wastewater Treatment* unit standards**

Subfield	Domain	ID
Water Industry	Wastewater Treatment	17877, 17881, 17882, 17885-17887, 19188, 19197, 19198, 24916, 24927-24948

The Infrastructure Industry Training Organisation has completed the review of the unit standards listed above.

Date new versions published

March 2017

Planned review date

December 2021

Summary

Gazetted coverage of the Water Industry, including Wastewater Treatment, was transferred to Infrastructure ITO in May 2015. Review of the unit standards had been due, but this, and the transfer of standard-setting responsibility, was delayed due to the Targeted Review of Qualifications (TRoQ). The review was conducted in 2016 to align the unit standards with current industry need and to support the New Zealand Certificate in Water Treatment (Drinking-Water/Wastewater) (Level 3) [Ref: 2241], the New Zealand Certificate in Water Treatment (Level 4) with strands in Drinking-Water Treatment, Wastewater Treatment, Drinking-Water Multistage Process, and Wastewater Multistage Processes [Ref: 2242], and the New Zealand Diploma in Water Treatment (Level 5) with strands in Drinking-Water Treatment, and Wastewater Treatment [Ref: 2245].

In 2016, a Wastewater Industry Working Group comprised of industry experts and tertiary providers met to review the structure, levels, credits, and content of the unit standards to update and align with current industry practice. The draft standards were then circulated to wider industry including industry peak bodies, wastewater treatment plant staff, providers, and district and regional councils for further consultation and feedback.

The review took place as part of a larger review of all standards within the *Water Industry* subfield, which included aligning levels and credits to achieve parity between similar skill sets across the industries and to support the qualifications. Additionally, the focus on processes within the qualifications led to an industry-wide decision to combine theory and practical aspects associated with treatment processes into single unit standards for each process.

Main changes

- Updates were made to titles, purpose statements, explanatory notes, outcomes, and evidence requirements to align the standards with current industry practice.
- Theory and practical process unit standards were combined and allocated levels and credits appropriate to the required knowledge and skills.
- Process-based standards were more broadly written to allow for different practices across the industry, and new and replacement process standards were developed to ensure all current processes are covered at operational and supervisory/management

levels.

- Levels and credits were adjusted to align with similar skill sets across the industries and to more appropriately reflect content.
- 20 new standards were developed to address emerging skills and identified gaps within the current suite (including process-based standards mentioned above).
- 24 standards were replaced by 13 new standards.
- One standard will expire and not be replaced.
- A last date for assessment of supersede version of B Category standards was specified. Results will not be accepted where the assessment date is after the last date for assessment of the superseded version of the standard.

Category C and D unit standards will expire at the end of December 2018.

The last date for assessment of superseded versions of Category B unit standards is December 2018

Impact on Consent and Moderation Requirements (CMR)

All standards transferred from CMR 0179 to CMR 0101.

Detailed list of unit standards – classification, title, level, and credits

All changes are in **bold**.

Key to review category	
A	Dates changed, but no other changes are made - the new version of the standard carries the same ID and a new version number
B	Changes made, but the overall outcome remains the same - the new version of the standard carries the same ID and a new version number
C	Major changes that necessitate the registration of a replacement standard with a new ID
D	Standard will expire and not be replaced

Engineering and Technology > Water Industry > Wastewater Treatment

ID	Title	Level	Credit	Review Category
17877	Operate and monitor a wastewater treatment plant	4	18 10	B
17881	Demonstrate knowledge of primary processes in wastewater treatment	3	5	C
17882	Demonstrate knowledge of sludge digestion processes in wastewater treatment	4	10	C
17887	Demonstrate knowledge of tertiary processes in wastewater treatment	3	7	C
24928	Demonstrate knowledge of preliminary processes in wastewater treatment	3	2	C
29931	Demonstrate knowledge of treatment processes for wastewater	3	6	
17885	Demonstrate knowledge of oxidation ponds in wastewater treatment processes	3	7	C
29954	Describe and operate oxidation pond processes in wastewater treatment	4	6	

ID	Title	Level	Credit	Review Category
17886	Demonstrate knowledge of fixed growth reactor processes in wastewater treatment	3	7	C
29952	Describe and operate fixed growth reactor processes in wastewater treatment	4	10	
19188	Describe preventive maintenance and monitoring of product standards for wastewater treatment	3	3	D
19197	Report on a wastewater treatment plant topic or improvement	5	12 10	B
19198	Assess a wastewater treatment plant for optimal output, and describe critical points Assess the optimisation of a wastewater treatment plant, and describe critical control points	5	12	B
24916	Demonstrate knowledge of the legislative framework and agencies relevant to wastewater treatment	3	5 4	B
24927	Describe, and undertake sampling and testing procedures for wastewater treatment	3 4	9 7	B
24929	Demonstrate knowledge of biosolids management in wastewater treatment	4	10	C
29949	Describe and operate treated sludge and biosolids management processes in wastewater treatment	4	12	
24930	Demonstrate knowledge of activated sludge processes in wastewater treatment	4	10	C
29930	Describe and operate activated sludge processes in wastewater treatment	4	16	
24931	Demonstrate knowledge of pumping systems in wastewater treatment	3	6	B
24932	Describe the impact of effluent discharge on the environment	5	10	C
24940	Interpret data to determine the effect of effluent discharge on the environment	5	4	C
29933	Interpret data to determine the effect of effluent discharge on the environment	5	10	
24933	Describe wastewater treatment separation processes, and critical points	5	6	C
24941	Manage, monitor, and optimise separation processes in wastewater treatment	5	4	C
29945	Manage, monitor, and optimise separation processes in wastewater treatment	5	10	

ID	Title	Level	Credit	Review Category
24934	Describe wastewater activated sludge treatment processes, and critical points	5	10	C
24947	Manage, monitor, and optimise activated sludge processes in wastewater treatment	5	5	C
29935	Manage, monitor, and optimise activated sludge processes in wastewater treatment	5	14	
24935	Describe wastewater fixed growth reactor treatment processes, and critical points	5	6	C
24942	Manage, monitor, and optimise fixed growth reactor processes in wastewater treatment	5	4	C
29939	Manage, monitor, and optimise fixed growth reactor processes in wastewater treatment	5	12	
24936	Describe wastewater oxidation pond treatment processes, and critical points	5	4	C
24943	Manage, monitor, and optimise oxidation pond processes in wastewater treatment	5	3	C
29943	Manage, monitor, and optimise oxidation pond processes in wastewater treatment	5	8	
24937	Describe lagoon type wastewater treatment processes, and critical points	5	4	C
24944	Manage, monitor, and optimise lagoon processes in wastewater treatment	5	3	C
29941	Manage, monitor, and optimise lagoon processes in wastewater treatment	5	7	
24938	Describe wastewater sludge and biosolids management	5	10	C
24945	Manage, monitor, and optimise solid waste processes, and dispose of solid waste, in wastewater treatment	5	5	C
29936	Manage, monitor, and optimise treated sludge and biosolids processes, and dispose of biosolids, in wastewater treatment	5	15	
24939	Describe effluent disinfection, and critical points	5	4	C
24946	Manage, monitor, and optimise effluent disinfection processes in wastewater treatment	5	4	C
29937	Manage, monitor, and optimise effluent disinfection processes in wastewater treatment	5	8	
24948	Describe the characteristics of, and sources that affect, wastewater	4	15 6	B
29929	Carry out wastewater treatment operations under supervision	3	5	New
29932	Describe and operate effluent disinfection processes in wastewater treatment	4	8	New

ID	Title	Level	Credit	Review Category
29934	Describe and operate wastewater effluent application to land	4	6	New
29938	Describe and operate effluent filtration processes in wastewater treatment	4	12	New
29940	Carry out microbiological monitoring for wastewater treatment	4	4	New
29942	Manage, monitor, and optimise effluent filtration processes in wastewater treatment	5	14	New
29944	Manage risks in wastewater treatment	5	30	New
29946	Manage, monitor, and optimise wetlands processes in wastewater treatment	5	8	New
29947	Manage, monitor, and optimise nutrient removal processes in wastewater treatment	5	16	New
29948	Describe and operate lagoon processes in wastewater treatment	4	6	New
29950	Describe and operate nutrient removal processes in wastewater treatment	4	14	New
29951	Manage, monitor, and optimise odour control processes in wastewater treatment	5	10	New
29953	Describe and operate odour control processes in wastewater treatment	4	9	New
29955	Describe and operate preliminary processes in wastewater treatment	4	7	New
29956	Describe and operate wetlands processes in wastewater treatment	4	8	New
29957	Describe and operate separation processes in wastewater treatment	4	9	New
29958	Describe and operate sludge treatment processes in wastewater treatment	4	12	New
29959	Demonstrate knowledge of the regulatory framework relevant to wastewater treatment	4	4	New
29960	Manage, monitor, and optimise sludge treatment processes in wastewater treatment	5	14	New
29961	Demonstrate knowledge of treated wastewater effluent reuse	4	8	New