

Title	Describe treatment processes for wastewater		
Level	3	Credits	6

Purpose	People credited with this unit standard are able to describe preliminary, primary, secondary, tertiary, and sludge processes in wastewater treatment.
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Classification	Water Industry > Wastewater Treatment
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Available grade	Achieved
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Guidance Information

- 1 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.
- 2 Legislation relevant to this unit standard includes: Health and Safety at Work Act 2015, Water Services Act 2021, Resource Management Act 1991, Hazardous Substances and New Organisms Act 1996, Health and Safety at Work (Hazardous Substances) Regulations 2017, and subsequent amendments.
- 3 Definitions
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.
Wastewater may include stormwater and sewage systems.

Outcomes and performance criteria

Outcome 1

Describe preliminary processes in wastewater treatment.

Performance criteria

- 1.1 The purpose of preliminary treatment is described in terms of the characteristics of wastewater and its effect on the treatment process.

Range	flow measurement, flow balancing, non-volatile solids removal; evidence of one is required.
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- 1.2 Process options for preliminary treatment are described in terms of mode of operation, inputs, outputs, advantages and disadvantages.
- Range flow balancing tanks, coarse screening, fine screening, screenings washing, maceration, grit removal, grease removal; evidence of one is required.
- 1.3 Tests and performance measures applicable to a preliminary treatment option are described in terms of efficiency and downstream effects.
- Range evidence of one test and one performance measure is required.
- 1.4 Options for disposal of end products of preliminary treatment are described in terms of environmental impact, health risks, and efficiency.

Outcome 2

Describe primary processes in wastewater treatment.

Range settlement, air flotation;
evidence of one is required.

Performance criteria

- 2.1 The purpose of primary treatment is described in terms of the characteristics of wastewater and the process of solids removal.
- 2.2 Process options for primary treatment are described in terms of mode of operation, inputs, outputs, advantages and disadvantages.
- 2.3 Tests and performance measures applicable to primary treatment are described in terms of purpose and potential actions stemming from results.
- Range tests may include but are not limited to – suspended solids tests, fat and grease tests, Biochemical Oxygen Demand (BOD) tests, sedimentation tests;
evidence is required for two tests and one performance measure.

Outcome 3

Describe secondary processes in wastewater treatment.

Performance criteria

- 3.1 The purpose of secondary treatment is described in terms of the characteristics of wastewater and the process of biological stabilisation and pollution reduction.
- 3.2 Process options for secondary treatment are described in terms of mode of operation, inputs, outputs, advantages and disadvantages.

3.3 Tests and performance measures applicable to secondary treatment are described in terms of purpose and potential actions stemming from results.

Range tests may include but are not limited to – suspended solids tests, Biochemical Oxygen Demand (BOD) tests, dissolved oxygen, pH level, sludge volume index (SVI), sedimentation tests; evidence is required for two tests and one performance measure.

Outcome 4

Describe tertiary processes in wastewater treatment.

Performance criteria

4.1 The purpose of tertiary treatment is described in terms of the characteristics of wastewater and its effect on the final effluent.

4.2 Process options for tertiary treatment are described in terms of mode of operation, inputs, outputs, advantages and disadvantages.

Range may include but is not limited to – tertiary ponds, wetlands, filtration, ultraviolet (UV) disinfection; evidence is required for at least two process options.

4.3 Tests and performance measures applicable to tertiary treatment options are described in terms of purpose, efficiency and downstream effects.

Range tests may include but are not limited to – tertiary ponds, wetlands, filtration, ultraviolet (UV) disinfection; evidence is required for two process options and one performance measure for each process option.

Outcome 5

Describe sludge processes in wastewater treatment.

Performance criteria

5.1 The purpose of sludge processing is described in terms of stabilisation and dewatering.

5.2 Process options for sludge are described in terms of mode of operation, inputs, outputs, advantages and disadvantages.

Range may include but is not limited to – digestion, thickening, dewatering, disposal; evidence is required for at least two process options.

5.3 Tests and performance measures applicable to sludge process options are described in terms of purpose, efficiency and downstream effects.

Range tests may include but are not limited to – pH, solids percentage; evidence is required for at least two process options; performance measures – evidence is required for one performance measure for each process option.

Planned review date	31 December 2026
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Replacement information	This unit standard replaced unit standard 17881, unit standard 17882, unit standard 17887, and unit standard 24928.
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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	24 February 2022	N/A

Consent and Moderation Requirements (CMR) reference	0101
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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@waihanga.nz if you wish to suggest changes to the content of this unit standard.