

Title	Describe and operate sludge treatment processes in wastewater treatment		
Level	4	Credits	12

Purpose	People credited with this unit standard are able to: describe sludge treatment processes; monitor and adjust sludge treatment processes; carry out maintenance procedures on sludge treatment equipment; and describe the storage, handling, and preparation of any chemicals, and chemical dosing systems used in sludge treatment processing 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

- 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. Evidence for assessment of the practical aspects of this unit standard must be gathered using the sludge treatment processes in the candidate's own workplace.
- Legislation relevant to this unit standard includes the Health and Safety at Work Act 2015, Water Services Act 2021, Resource Management Act 1991, Hazardous Substances and New Organisms (HSNO) Act 1996, and subsequent amendments.
- 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.

Sludge refers to the residual, semi-solid material that is produced as a by-product during treatment of wastewater. This material must be managed to reduce its impact on the environment, and these processes are referred to as *treatment*.

Wastewater may include stormwater and sewage systems.
- Learning and assessment activities for this unit standard must be informed by Te Mana o te Wai (refer to [Taumata Arowai](#)) and the *National Policy Statement for Freshwater Management 2020* available from <https://environment.govt.nz/>.

Outcomes and performance criteria

Outcome 1

Describe sludge treatment processes in wastewater treatment.

Performance criteria

- 1.1 The purpose and principles of sludge treatment are described in terms of the stabilisation of pollutants, and reduction of volume and contaminants.
- 1.2 Plant configuration options for sludge treatment are described in terms of their layout options, any gas capture methods, advantages, and disadvantages.

Range evidence of two plant configuration options is required.
- 1.3 The sludge treatment process is described in terms of the function of its component parts and identification of process failure.
- 1.4 Sludge treatment is described in terms of the process outputs.
- 1.5 Legislation and regulations relevant to sludge treatment are described in terms of their purpose, effect on the process, and consequences of non-compliance.

Outcome 2

Monitor and adjust sludge treatment processes in wastewater treatment.

Performance criteria

- 2.1 Process tests are described for sludge treatment.

Range moisture content, organic, inorganic, toxicity, supernatant liquor, pH.
- 2.2 The performance measures for sludge treatment are described in terms of efficiency and effects on final disposal.
- 2.3 Testing equipment is calibrated, tests or measurements for monitoring process inputs are carried out, and results are recorded.
- 2.4 Process inputs are adjusted.
- 2.5 Any relevant consumables are checked and ordered.

Outcome 3

Carry out maintenance procedures on sludge treatment equipment in wastewater treatment.

Performance criteria

- 3.1 Preventative maintenance procedures are carried out and recorded.
- 3.2 Any required repairs are carried out according to process and/or equipment failure.
- 3.3 Actions for maintaining process continuity are carried out.

Outcome 4

Describe the storage, handling, and preparation of any chemicals, and chemical dosing systems used in sludge treatment processing in wastewater treatment.

Performance criteria

- 4.1 The storage, handling, and preparation of any chemicals used in sludge treatment are described in terms of the HSNO Act 1996.
- 4.2 Any chemical dosing systems used in sludge treatment are described in terms of the components, methods, and points of application.

Planned review date	31 December 2026
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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 2023
Review	2	28 April 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.