

Title	Demonstrate knowledge of rehabilitation and replacement of existing water pipe lines		
Level	3	Credits	3

Purpose	People credited with this unit standard are able to demonstrate knowledge of: criteria to be considered before selecting either a rehabilitation or replacement technology for existing water pipes; and rehabilitation and replacement of existing water pipe lines.
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Classification	Water Industry > Water Reticulation
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Available grade	Achieved
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Guidance Information

- 1 Legislation and references relevant to this unit standard include: Health and Safety at Work Act 2015, Local Government Act 2002, and subsequent amendments; Stephenson, G; *Removing Loose Deposits From Water Mains: Operational Guidelines* (Water Research Centre, Great Britain, 1989); Warren, I C; Mason, S D; Conroy, P J; *In-Situ Cement Mortar Lining – Operational Guidelines and Code of Practice* (Water Research Centre, Great Britain, 1990). ISBN 0 902156 84 5; AS/NZS 4998:2009 *Bolted unrestrained mechanical couplings for waterworks purposes*; NZS 4404:2010 *Land Development and Subdivision Infrastructure*; and AS/NZS 2566.2:2002 *Buried flexible pipelines - Installation*, all available from <http://www.standards.govt.nz>;
Local or Territorial Authority codes of practice.
- 2 Definitions
Water reticulation – in this context refers to all pipe systems, pumping systems, and components that contribute to the distribution of water.
Replacement – restore the service life or extend parts of the water distribution system.
Rehabilitation – existing pipes are repaired, relined or re-coated.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of criteria to be considered before selecting either a rehabilitation or replacement technology for existing water pipes.

Performance criteria

- 1.1 Selection criteria are described in terms of their importance, and applicability for specified situations.

Range evidence is required for at least three selection criteria.

Outcome 2

Demonstrate knowledge of rehabilitation of existing water pipe lines.

Range two different rehabilitation techniques.

Performance criteria

- 2.1 Rehabilitation techniques are described in terms of their uses and suitability for specified situations, and pipe materials.

- 2.2 Rehabilitation techniques are described in terms of the procedures and methods of installation.

- 2.3 Rehabilitation techniques are described in terms of their advantages and disadvantages.

Range evidence is required for at least two advantages and two disadvantages.

- 2.4 The uses of closed circuit television (CCTV) are described for selecting and assessing rehabilitation techniques, before and after lining.

Outcome 3

Demonstrate knowledge of replacement of existing water pipe lines.

Range two of – dig and lay; pipe bursting; directional drilling.

Performance criteria

- 3.1 Replacement methods are described in terms of their uses and suitability for specified situations.

- 3.2 Replacement methods are described in terms of the procedures used.

- 3.3 Replacement methods are described in terms of the materials used.

- 3.4 Replacement methods are described in terms of their advantages and disadvantages.

Range evidence is required for at least two advantages and two disadvantages.

- 3.5 Replacement methods are described in terms of precautions for use and visible warning signs at ground level.

Replacement information	This unit standard, unit standard 19209, unit standard 19211, unit standard 22100, unit standard 24922, and unit standard 27330 were replaced by unit standard 31449.
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This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	26 October 2005	31 December 2016
Rollover and Revision	2	20 February 2009	31 December 2016
Rollover and Revision	3	21 July 2011	31 December 2018
Review	4	16 March 2017	31 December 2021
Review	5	27 September 2018	31 December 2021

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>.