

Title	Demonstrate hydraulic knowledge for firefighting		
Level	3	Credits	4

Purpose	People credited with this unit standard are able to: <ul style="list-style-type: none"> - demonstrate knowledge of hydraulic principles and relationships; and - calculate areas, volumes, and flow rates for regular and irregular geometrical shapes of water tanks.
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Classification	Fire and Rescue Services > Fire and Rescue Services - Generic Fire Fighting
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Available grade	Achieved
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Guidance Information

- 1 Compliance with the fire and emergency agency's Health and Safety policy and procedures is mandatory.
- 2 Definition
Fire and emergency agency's requirements refer to policies, procedures and supporting documentation on safety and operations set down by each fire and emergency agency employer or host organisation.
- 3 Assessment against all outcomes must be in accordance with the fire and emergency agency's requirements.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of hydraulic principles and relationships.

Performance criteria

- 1.1 The maximum lift of water is defined and explained.
Range theoretical, practical.
- 1.2 The change in pressure in a hose is calculated from given data.
Range friction coefficient, diameter, length, head, velocity and/or flow.

1.3 Problems dealing with a range of hydraulic relationships are solved.

Range jet reaction, head, velocity and/or flow, pressure.

1.4 Velocity and discharge rates for water passing through hoses and nozzles are explained.

Range flow rate, static pressure, running pressure.

Outcome 2

Calculate areas, volumes, and flow rates for regular and irregular geometrical shapes of water tanks.

Performance criteria

2.1 Volumes of regular geometrically shaped tanks are calculated.

Range circular tank, rectangular tank, rectangular static water supply with sloping base.

2.2 Flow rates of water in given examples are calculated.

Range a minimum of two of – pipes, hose, nozzle, channel, creek.

2.3 The calculation to convert pressure into head and from head into pressure is demonstrated.

2.4 Surface areas and volumes of irregular shaped water catchment areas are calculated.

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Status information and last date for assessment for superseded versions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	25 March 2004	31 December 2023
Review	2	20 November 2009	31 December 2023
Review	3	30 September 2021	N/A

Consent and Moderation Requirements (CMR) reference	0039
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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 The Skills Organisation reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.