

40887 Conduct and compile discharge measurement by wading

Kaupae Level	5
Whiwhinga Credit	20
Whāinga Purpose	This skill standard is for people working in, or seeking skills in, hydrology and field water monitoring. Learners will be able to conduct streamflow measurements in wadable rivers and streams using velocity–area methods, select and prepare appropriate equipment, carry out discharge measurements to national standards, and derive, evaluate, and store discharge data and metadata following industry best practice. They will ensure the quality, accuracy, and traceability of all measurements. This skill standard has been developed to align with the New Zealand Diploma in Field Hydrology (Level 5) [Ref: 2344].

Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
1. Conduct discharge measurement by wading and record results.	a. Identify and evaluate appropriate gauging sites based on flow conditions, safety, and data requirements.
	b. Select and verify measurement equipment according to worksite procedures.
	c. Perform and record discharge measurements using velocity-area methods by wading, adjusting techniques for field and environmental conditions.
2. Compile discharge results and assess measurement quality.	a. Calculate discharge using field data.
	b. Perform checks to validate data accuracy and consistency.
	c. Perform post-deployment inspections, identify discrepancies, and apply corrective actions before departing site.
3. File discharge results and associated metadata.	a. Store gauging results and field observations in correct formats and designated databases.
	b. Prepare and file metadata including site details, equipment used, and gauging conditions.

Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria***Assessment specifications:***

Learners/ākonga evidence must be collected using naturally occurring activities.

All activities and evidence must meet the requirements of worksite procedures, accepted industry practice, legislation and any subsequent amendments.

Providers must give due consideration to embedding ngā kaupapa (principles) o Te Tiriti o Waitangi when designing delivery activities relevant to this standard. These principles are outlined in [Guidelines for Providers: Embedding Tirohanga Māori](#).

Providers must give due consideration to the needs and values of Pacific peoples and other cultural groups when designing delivery activities relevant to this standard, ensuring practices are inclusive and equitable. This may include treating the Awa as a living entity, engaging with local iwi to understand cultural narratives relevant to the river's behaviour, and arranging a blessing before work commences.

Range

Hydrometric data includes water level and rainfall time series data.

A minimum of 10 discharge gaugings must be performed on separate occasions at no fewer than four sites across a range of flows.

Gaugings must be conducted using the velocity-area method in accordance with NEMS and worksite procedures.

Definitions

Accepted industry practice refers to approved codes of practice and standardised procedures accepted by the wider industries as examples of best practice.

Metadata describes data in detail. It has information about how, when, and by whom certain data was collected and the data format.

Worksite procedures refer to the policies and procedures set out in a verbal or written form by the employer or organisation.

Ngā momo whiwhinga | Grades available

Achieved.

Ihirangi waitohu | Indicative content**Conduct Discharge Measurements**

- Site selection for wading and other methods (stable streambed, uniform flow, representative depth).
- Bank stability, site access, flow uniformity, and cross-section geometry (NEMS site-survey guidance).
- Hydrometric equipment and technology (ADCP moving boat, ADCP mean section, ADV FlowTracker, current meters, flow sticks, and other tools).
- Preparation of gauging equipment, measuring tapes, and PPE.
- Measurement procedures following NEMS and manufacturer specifications.
- Channel cross-section establishment (width, depth, subsections).
- Velocity measurement techniques and application of standard approaches.
- Compilation of discharge measurements for analysis.

Conduct Instrument Checks

- Calibration and preparation of instruments before field use.
- Verification of instrument performance against NEMS requirements.
- Measurement error troubleshooting and minimisation.
- Safe handling of equipment and use of PPE in hydrometric operations.

File Discharge Results

- Onsite review and validation of discharge measurements using appropriate software.
- Comparison of measurements with rating curves to confirm accuracy.
- Use of software to integrate flow components and calculate total discharge.
- Computation and downloading of discharge measurements for processing.
- Discharge measurement processing in compliance with NEMS protocols.
- Metadata requirements (site ID, date/time, personnel, methods, serial numbers, QC notes).
- Documentation of conditions, personnel, and methods associated with measurements.
- Data storage in NEMS-compliant hydrometric databases with clear filenames and backup systems and workplace procedures.

Rauemi | Resources

Legislation and codes of practice relevant to this skill standard include but are not limited to:

- NZHS [NZHS | The New Zealand Hydrological Society](#).
- Health and Safety at Work Act 2015, Resource Management Act 1991, Public Works Act 1981, Resource Management (National Environmental, Standards for Freshwater) Regulations 2020 [New Zealand Legislation](#).
- Freshwater Farm Plans [Freshwater farm plans | Ministry for the Environment](#).
- National Environmental Monitoring Standards (NEMS) [National Environmental Monitoring Standards » National Environmental Monitoring Standards \(NEMS\)](#).
- National Policy Statement for Freshwater Management 2014 [National Policy Statement for Freshwater Management | Ministry for the Environment](#).

and any subsequent amendments or replacements.

Pārongo Whakaū Kouna | Quality assurance information

Ngā rōpū whakatau-paerewa Standard Setting Body	Muka Tangata – People Food and Fibre Workforce Development Council
Whakaritenga Rārangi Paetae Aromatawai DASS classification	Engineering and Technology > Water Industry > Field Hydrology
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga CMR	0052

Hātepe Process	Putanga Version	Rā whakaputa Review Date	Rā whakamutunga mō te aromatawai Last date for assessment
Rēhitatanga Registration	1	25 September 2025	N/A
Kōrero whakakapinga Replacement information	This skill standard replaced unit standard 28802.		
Rā arotake Planned review date	31 December 2030		

Please contact Muka Tangata – People Food and Fibre Workforce Development Council at qualifications@mukatangata.nz to suggest changes to the content of this skill standard.