

40889**Process and analyse hydrometric data**

Kaupae Level	5
Whiwhinga Credit	20
Whāinga Purpose	This skill standard is for people working in, or seeking skills in, hydrometry and field water monitoring. Learners will be able to manage and analyse hydrometric data from monitoring stations, verify data quality and consistency, interpret results, detect discrepancies, and apply adjustments and corrections in accordance with NEMS and worksite procedures. They will develop competence in maintaining data integrity, applying quality codes, and ensuring long-term accessibility and traceability of hydrometric records. 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. Verify and process hydrometric data.	a. Compare data with field observations and notes to detect discrepancies in identified patterns.
	b. Adjust and correct data based on verification findings.
	c. Assign quality codes or status to data using accepted classification standards.
	d. Document all actions, changes, and decisions in the metadata record.
2. Analyse hydrometric data to identify and correct discrepancies.	a. Analyse data to identify potential discrepancies or inconsistencies.
	b. Demonstrate corrective action to address identified issues.
3. Present quality-assured hydrometric information to users.	a. Present analysed hydrometric data, including all relevant metadata and data quality status explanations.
	b. Communicate worksite procedures on provision of data.

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
4. Store hydrometric data.	a. Confirm accuracy and validity of processed data prior to archiving.
	b. Ensure data consistency with parameter characteristics and long-term context.
	c. Store data, metadata, and supporting information in secure, accessible storage systems.

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

Assessment specifications:

Learners/ākonga' evidence must be collected from 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.

Range

Hydrometric data includes water level and rainfall time series data.

Learners must analyse three data sets, each involving the verification, processing, and archiving of at least three months of data from three different sites. At least one of the sites must include a different parameter (e.g., rainfall vs. water level).

Metadata must be fully documented for all processed datasets.

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**Recognise, Validate Data and Process Data**

- Types of hydrological data (water level, rainfall, discharge)
- Data validation techniques, reviewing time-series graphs, field notes, logs, and photos for anomalies
- Common data issues, spikes, sensor drift, calibration errors, and gaps
- NEMS quality coding and consistency standards
- Data adjustments rating shifts, zero corrections, offsets
- Time-series editors and software tools for validation and correction
- Metadata requirements for all changes (who, when, why)

Perform Statistical and Visual Analysis

- Statistics for hydrological datasets (mean, median, percentiles, standard deviation)
- Visualisation methods time-series plots, hydrographs, histograms, intensity plots
- Detection of anomalies sensor drift, outliers, seasonal irregularities
- QA procedures for corrections, gap filling, and reanalysis
- Consistency checking and identification of long-term changes
- Alignment with NEMS and industry standards for data analysis

Communicate Quality Assured Data

- Audience needs are identified for hydrological data communication
- Data delivery formats: maps, tables, dashboards, reports
- Metadata communication: data source, period, instrumentation, quality codes
- Communicating data quality, limitations, and adjustments transparently
- Procedures for data access, intellectual property, privacy, and legislative compliance
- Applications of quality-assured data in regulation, water allocation, flood response, and planning
- Producing traceable and accurate outputs tailored to stakeholder need

Apply Quality Status, Approval, Archive and Secure Data

- Application of NEMS quality codes
- Ensuring traceability and transparency in data processing
- Approval processes before archiving or dissemination
- Consistent file naming conventions and directory structures
- Secure database storage, version control, and backup practices
- Disaster recovery and long-term data security measures

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 Kounga | 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 28805.		
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.