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Bureau of Meteorology

WATER MONITORING
STANDARDISATION
TECHNICAL COMMITTEE

National Industry Guidelines for hydrometric monitoring

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PART 7: TRAINING

NI GL 100.07–2019

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In 2017 and 2018 the Water Monitoring Standardisation Technical Committee (WaMSTeC) led a periodic review of the National Industry Guidelines for hydrometric monitoring. WaMSTeC subcommittees conducted the review process and coordinated extensive industry consultation.

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Foreword

This guideline is part of a series of ten National Industry Guidelines for hydrometric monitoring. It has been developed in the context of the Bureau of Meteorology's role under the *Water Act 2007* (Cwlth) to enhance understanding of Australia's water resources.

The Bureau of Meteorology first published these guidelines in 2013 as part of a collaborative effort amongst hydrometric monitoring practitioners to establish standardised practice. They cover activities relating to surface water level, discharge and water quality monitoring, groundwater level and water quality monitoring and rainfall monitoring. They contain high level guidance and targets and present non-mandatory Australian industry recommended practice.

The initial versions of these guidelines were endorsed by the Water Information Standards Business Forum (the Forum), a nationally representative committee coordinating and fostering water information standardisation. In 2014, the functions and activities of the Forum transitioned to the Water Monitoring Standardisation Technical Committee (WaMSTeC).

In 2017, as part of the ongoing governance of the guidelines, WaMSTeC initiated a 5-yearly review process to ensure the guidelines remain fit-for-purpose.

These revised guidelines are the result of that review. They now include additional guidance for groundwater monitoring, and other updates which improve the guidelines' currency and relevance. WaMSTeC endorsed these revised guidelines in December 2018.

Industry consultation has been a strong theme throughout development and review of the ten guidelines. The process has been sponsored by industry leaders and has featured active involvement and support from the Australian Hydrographers Association, which is considered the peak industry representative body in hydrometric monitoring.

These guidelines should be used by all organisations involved in the collection, analysis and reporting of hydrometric information. The application of these guidelines to the development and maintenance of hydrometric programs should help organisations mitigate program under-performance and reduce their exposure to risk.

Organisations that implement these guidelines will need to maintain work practices and procedures that align with guideline requirements. Within the guidelines, the term “shall” indicates a requirement that must be met, and the term “should” indicates a recommendation.

The National Industry Guidelines can be considered living documents. They will continue to be subject to periodic WaMSTeC review at intervals of no greater than five years. In the review phase, WaMSTeC will consider any issues or requests for changes raised by the industry. Ongoing reviews will ensure the guidelines remain technically sound and up to date with technological advancements.

National Industry Guidelines for hydrometric monitoring

This document is one part of the National Industry Guidelines for hydrometric monitoring series, which can be found at <http://www.bom.gov.au/water/standards/niGuidelinesHyd.shtml>.

The series contains the following parts:

Part 0: Glossary

Part 1: Primary Measured Data

Part 2: Site Establishment and Operations

Part 3: Instrument and Measurement Systems Management

Part 4: Gauging (stationary velocity-area method)

Part 5: Data Editing, Estimation and Management

Part 6: Stream Discharge Relationship Development and Maintenance

Part 7: Training (*this guideline*)

Part 8: Application of Acoustic Doppler Current Profilers to Measure Discharge in Open Channels

Part 9: Application of in-situ Point Acoustic Doppler Velocity Meters for Determining Velocity in Open Channels

Part 10: Application of Point Acoustic Doppler Velocity Meters for Determining Discharge in Open Channels

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National Industry Guidelines for hydrometric monitoring Part 7: Training

1 Scope and general

1.1 Purpose

The purpose of this document is to provide guidelines for recommended practice to ensure that hydrographers are properly trained and competent. It also aims to ensure that an organisation's training programs are adequately managed and recorded, and align with legislative requirements.

1.2 Scope

This guideline identifies competency types, how to find learning material that address these competencies and minimum requirements of training records.

1.3 Bibliography

Cognisance of the following was taken in the preparation of this guideline:

1. Relevant State and Federal Government Health and Safety legislation.
2. Relevant organisational training records data bases.
3. Australian Hydrographers Association, Development/Training webpage viewed on 2 October 2018, <<https://aha.net.au/development/training/>>.
4. Australian Hydrographers Association, Development/Diploma webpage viewed on 2 October 2018, <<https://aha.net.au/development/diploma/>>.
5. National Water Training Package (NWP), Training.gov.au, viewed on 2 October 2018, < <https://training.gov.au/Training/Details/NWP>>.

1.4 Definitions

For the purpose of this guideline, the definitions given in National Industry Guidelines for hydrometric monitoring, Part 0: *Glossary*, NI GL 100.00–2019 apply.

2 Competency categories

Two categories of training provide minimum competencies for hydrographers:

- a) legislative and/or corporate (that is, Health and Safety); and
- b) technical (that is, specific to the discipline of hydrography).

2.1 Legislative/corporate competencies

The following are some examples of legislative or corporate training:

- a) basic Health and Safety;
- b) specific Health and Safety (for example confined spaces, swift water boating, 4-wheel drive and similar); and
- c) environment and culture.

2.2 Technical competencies

The following are some examples of where competency training can be sourced:

- a) mentoring: that is, competencies are gained by “on the job” transfer of knowledge;
- b) “in house” technical training: for example, work methods/work instructions, specific to an organisation’s operational techniques (that is, instrumentation, telemetry systems, computer software and similar);
- c) nationally recognised courses specific to hydrography: the Diploma of Water Industry Operations (Hydrography) (NWP50715) defined in the National Water Training Package (NWP) is available through the Australian Hydrographers Association (AHA) website; and
- d) hydrography training: the Australian Hydrographers Association offers three levels of training (Introduction, Intermediate and Advanced).

NOTE: on completion of some Intermediate AHA subjects, candidates can apply for recognition of prior learning toward the Diploma.

Recognition of prior learning applies to accredited courses or in-house training and is the process of recognising an employee’s previous experience and training specific to the competency sought.

Continued professional development is recognised through certification (a program managed by the Australian Hydrographers Association that requires candidates to demonstrate and maintain sufficient hydrometric experience and knowledge).

3 Skills assessment

The organisation should develop and implement a skills assessment of staff against specific hydrometric processes and activities. This assessment would provide a skills base for the organisation and identify training priorities.

4 Training plan

In consultation with the employee, the organisation should develop a training plan that sets milestones and agreed outcomes to ensure skills are developed and maintained.

5 Training records

Each organisation shall be responsible for appropriate recording and archiving of an employee's training program and performance history.

These records shall be in either electronic or hard copy form and shall remain accessible.

These records shall include but not be limited to:

- a) employee details i.e. name address, employer and similar;
- b) substantive position;
- c) qualifications, that is, tertiary and similar;
- d) mandatory training;
- e) date of successful completion;
- f) retrain date;
- g) course title;
- h) course number (if available); and
- i) accrediting body.

Appendix A Training

A.1 Training session outline

LEARNING ELEMENTS	RESOURCES	DESCRIPTION	
Identify and understand the 1.1 Purpose and 1.2 Scope of this guideline	Copies of all guidelines documents. Access to all reference material.	Discussion with reference to the guidelines document.	Face to face delivery
1.3 Bibliography	Copies of all guidelines documents. Access to all reference material.	Trainers to ensure the learner's ability to source and use reference material.	Face to face delivery
2 Competency categories 2.1 Legislative/corporate competencies 2.2 Technical competencies	Copies of all guidelines documents. Access to all reference material.	Explain the two types of competencies.	Face to face delivery
3 Skills assessment	Copies of all guidelines documents. Access to all reference material.	Explain what is involved in developing and implementing a skills assessment	Face to face delivery
4 Training plan	Copies of all guidelines documents. Access to all reference material.	Describe each party's role in developing and maintaining a training plan.	Face to face delivery
5 Training records	Copies of all guidelines documents. Access to all reference material.	Define the contents of a training schedule/program: <ul style="list-style-type: none"> • contents • record keeping. 	Face to face delivery

A.2 Training learning resources

A.2.1 Introduction

Welcome to the learner resource for National Industry Guidelines for hydrometric monitoring, Part 7: *Training*, NI GL 100.07–2019. The purpose of this resource is to develop your knowledge and skills and improve your competency in this guideline.

A.2.2 Section references

The table below shows elements of the guideline that are covered in this learner resource. This may help the learner to map their progress as they work their way through this resource.

Section	Unit element
1 Scope and general	Purpose Scope Bibliography Definitions
2 Competency categories	Legislative/corporate competencies Technical competencies
3 Skills assessment	
4 Training plan	
5 Training records	

A.2.3 Who needs this competency?

This learning material covers the skills and knowledge required for a person to use and understand National Industry Guidelines for hydrometric monitoring, Part 7: *Training*, NI GL 100.07–2019.

A.2.4 Learning outcomes

At the completion of this learner resource you will be competent in the following:

- use the guideline document for reference
- use the guideline in day to day operations
- access the material referenced in the guideline document
- use and understand related internal procedures and work instructions.

A.2.5 Health and safety considerations

Health and safety legislation shall always be considered when implementing National Industry Guidelines, workplace procedures and work instructions.

Employees carrying out work related to the National Industry Guidelines should be adequately trained in all relevant health and safety matters.

A.2.6 What resources will I need?

- Workplace policies and procedures
- Manufacturer manuals, requirements and specifications
- Codes of practice
- Workplace equipment, tools and instruments
- Workplace reports
- Workplace maps, plans and instructions
- Permits and access to locations and worksites

Other useful resources

- Relevant Health and Safety Act
- Safe Work Australia Model Codes of Practice
- Organisations procedures and work instructions
- Australian Standards