



Australian Government

NWPHYD009 Undertake surveying of monitoring sites

Release: 1

NWPHYD009 Undertake surveying of monitoring sites

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to undertake surveying of monitoring sites. It includes using appropriate survey equipment to collect survey data at monitoring sites and to process and manage the data for hydrometric purposes.

This unit applies to hydrographers and water operators involved in the monitoring of all the elements of the water cycle and their impact on the related environment. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrometric Monitoring

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan and assess survey requirements

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify survey objectives according to workplace procedures

1.2 Identify the location and value of survey reference

- marks from maps and plans
- 1.3** Choose and justify appropriate survey techniques for hydrometric purposes
 - 1.4** Identify and evaluate the source of levelling errors and misclosures
 - 1.5** Plan and manage the logistics and personnel to ensure effective outcomes and resource management
 - 1.6** Apply correct care procedure for storage, transport and use of survey equipment
 - 1.7** Assess and address WHS issues encountered during the surveying exercise, taking appropriate risk management strategies
- 2 Operate survey equipment**
- 2.1** Select, set up and prepare survey equipment and check level of accuracy according to workplace procedures
 - 2.2** Use mathematical techniques to check for correct operation of surveying equipment
 - 2.3** Use and select appropriate survey equipment according to site conditions
- 3 Select and survey monitoring sites**
- 3.1** Identify required survey reference benchmarks according to workplace procedures
 - 3.2** Identify and survey high-flow measurement cross-section, control section and cease-to-flow
 - 3.3** Survey cross sections of the channel to determine the profile of the channel in the gauging station reach including the use of stadia methods
 - 3.4** Identify and assess monitoring site survey reference points according to workplace procedures
 - 3.5** Establish benchmark and survey to Australian Height Datum according to workplace procedures
- 4 Document survey and data results**
- 4.1** Verify, document, store and archive results according to workplace procedures
 - 4.2** Produce a site layout plan of survey reference points
 - 4.3** Produce a plot of survey cross section

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit supersedes and is equivalent to NWPHYD015 Undertake surveying of monitoring sites.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD009 Undertake surveying of monitoring sites

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and verifying data using standard procedures, software and databases
- applying appropriate datum and projections
- applying sightings and standard error checks
- capturing, storing and archiving data
- carrying out collimation test to survey equipment accuracy
- ensuring cross sections and survey reference marks are suitable to a range of flow conditions
- identifying survey reference marks
- gathering and interpreting documentation
- locating features on maps and plans, finding survey reference marks and plotting locations
- maintaining surveying equipment
- measuring horizontal distance by stadia
- preparing and holding survey staff
- preparing and loading surveying equipment for transportation
- preparing clear and accurate reports
- preparing, setting up and operating surveying equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- agency remote area work health and safety procedures
- computer software relevant to the analysis and archiving of hydrometric data
- global positioning systems
- mathematical and other scientific techniques relevant to the analysis of hydrometric data
- relevant legislation and industry standards including:
 - Bureau of Meteorology
 - international and national standards
 - work health and safety

- World Meteorological Organisation
- relevant workplace policies and procedures
- workplace data recording and reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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