



Australian Government

Department of Education, Employment and Workplace Relations

NWP520A Contribute to hydrometric planning and water resource management

Revision Number: 2

NWP520A Contribute to hydrometric planning and water resource management

Modification History

NWP520A Release 2: Layout adjusted. No changes to content.

NWP520A Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to provide leadership to hydrometric planning and water resource management. A detailed understanding of the processes required to collect, analyse, store and report data together with the use of this information to inform effective policy development is essential to effective performance.

Application of the Unit

This unit supports the attainment of skills and knowledge required for senior hydrographers and related staff.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Review and plan hydrometric data management processes.	1.1 Review the hydrometric and water resource management planning and policy requirements of the organisation in consultation with senior management. 1.2 Review and analyse the data required to support the hydrometric planning and water resource management processes within the organisation. 1.3 Review the processes to collect, analyse, store and report hydrometric data to ensure they support the organisation's short, medium and long term planning needs. 1.4 Identify, plan and report resource requirements to meet the hydrometric data management needs of the organisation.
2 Support the provision of quality data.	2.1 Review work procedures and documentation used to support the collection, analysis, storage and reporting of hydrometric data as required and communicate to staff. 2.2 Use advanced mathematical and technical processes to support the planning and operation of hydrometric monitoring and testing regimes. 2.3 Determine monitoring and testing priorities. 2.4 Prepare reports in a format suitable to support decision-making and planning within the organisation.
3 Contribute to the effective management of water resources.	3.1 Review and analyse the role of hydrometric data in the development of water resource management policy within the organisation. 3.2 Gather, review and communicate local, national and international information and best practice policy regarding effective water resource management. 3.3 Conduct analysis of current, historic and trend data to inform the organisation's short, medium and long term water resource management planning. 3.4 Prepare clear and accurate reports in accordance with organisational procedures.

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit.

Required skills:

- collect and analyse hydrometric and water resource management data/information sourced locally, nationally and internationally
- apply complex mathematical modelling and analytical tools
- interpret and prepare technical documentation regarding the collection, analysis and reporting of hydrometric data
- identify potential or actual operational problems
- undertake evidence-based short, medium and long range planning
- communicate with employees, senior management and external industry experts
- prepare complex reports
- use computer systems
- use communication systems
- give and receive instructions

Required knowledge:

- high level hydrometric and water resource management technical and planning information
- mathematical techniques relevant to the complex analysis and planning of hydrometric data
- sampling and testing procedures
- occupational health and safety procedures
- policies and standard operating procedures
- communication systems

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The candidate should demonstrate the ability to provide leadership to hydrometric planning and water resource management including:

- gathering, interpreting and applying complex documentation related to the hydrometric planning and water resource management processes of the organisation
- reviewing and refining current practices used in the collection, analysis, storage and reporting of hydrometric data
- planning and setting priorities for the management of hydrometric data collection, storage and reporting
- preparing clear and accurate reports
- contributing to the development of short, medium and long term water resource management planning within the organisation

Context of and specific resources for assessment

Access to the workplace and resources including:

- documentation that should normally be available in a water industry organisation
- relevant codes, standards, and government regulations

Where applicable, physical resources should include equipment modified for people with disabilities

Access must be provided to appropriate learning and/or assessment support when required

Assessment processes and techniques must be culturally appropriate, and appropriate to the language and literacy capacity of the candidate and the work being performed.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice
- a decision of competence should only be made when the assessor has complete confidence in the person's competence over time and in various contexts
- all assessment that is part of a structured learning

experience must include a combination of direct, indirect and supplementary evidence

- where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
- assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit

In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the skill levels of the operator, any cultural issues that may affect responses to the questions, and reflecting the requirements of the competency and the work being performed.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording, if used in the Performance Criteria, is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

- Data*** required may include:
- local anecdotal 'data' (verbal metadata)
 - survey data (stream sections both cross and longitudinal)
 - GIS data
 - meteorological data
 - hydraulic analysis data
 - budgetary data
 - catchment water use data sets (actual resource use)
 - discharge measurements
 - ratings tables
 - water license entitlements data sets (potential resource use)
 - time series data (across data types)
- Processes to collect, analyse, store and report*** hydrometric data may include:
- downloading, processing, editing, validating, quality-coding and archiving time series data
 - service agreements
 - procedures for the establishment and management of ratings tables
 - data network audit tools, processes and software
 - high level use of database software, e.g. KISTERS modelling
 - communication of hydrometric information to clients
 - budget development and management processes
- Mathematical and technical processes*** may include:
- extending rating curves for monitoring sites
 - hydraulic analysis processes
 - physicochemical interactions analysis
 - data set extension techniques and processes
 - data set interpolation techniques and processes
 - data set creation techniques and processes (e.g. small ungauged catchments)
 - estimating uncertainty of measurements or estimations
 - applying statistical tests to evaluate an existing ratings table
 - using modelling or other processes to create synthesised data parameters based on accepted

procedures or standards

Unit Sector(s)

Not applicable.

Competency field

Hydrography.