



Australian Government

Department of Education, Employment and Workplace Relations

NWP705A Provide leadership in hydrometric network planning and water resource management

Release: 2

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Modification History

NWP705A Release 2: Layout adjusted. No changes to content.

NWP705A Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to provide leadership to hydrometric network 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 are essential to performance.

Application of the Unit

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

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit of competency 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 network and data management processes	1.1 Review hydrometric network and water resource management planning and policy requirements of the organisation in consultation with senior management. 1.2 Review and analyse data required to support hydrometric network planning and water resource management processes within the organisation. 1.3 Review processes to collect, analyse, store and report hydrometric network data to ensure they support organisation's short, medium and long-term planning needs. 1.4 Identify, plan, manage and report resource requirements to meet hydrometric network data management needs of the organisation. 1.5 Identify future and extended uses of data and monitoring networks as part of planning process and to ensure most effective use of data and network.
2 Manage provision of quality data	2.1 Communicate holistic purpose and eventual use of data to stakeholders and staff. 2.2 Review work procedures and documentation used to support collection, analysis, storage and reporting of hydrometric network data and communicate outcomes to staff. 2.3 Use advanced mathematical and technical processes to support planning and operation of hydrometric network monitoring and testing regimes. 2.4 Set monitoring and testing priorities. 2.5 Prepare reports in a format suitable to support decision-making and planning within organisation. 2.6 Plan and ensure appropriate and relevant training is provided to staff in specialist systems used in data management to ensure that a consistent approach to data collection, analysis and management occurs.
3 Provide leadership in the effective management of water resources	3.1 Review and analyse role of hydrometric network data in development of water resource management policy within organisation, particularly in identifying deficiencies in networks. 3.2 Gather, review and communicate local, national and international information and best-practice policy regarding effective water resource management. 3.3 Analyse current, historical and trend data to inform organisation's short, medium and long-term water resource management planning. 3.4 Prepare clear and accurate reports according to 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 network and water resource management information sourced locally, nationally and internationally
- develop and manage budgets
- 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, external industry experts and other stakeholders
- prepare complex reports
- use computer systems
- use communication systems
- give and receive instructions

Required knowledge:

- relevant Australian standards, international guidelines and best practice systems applicable to nature and purpose of the monitoring network
- high-level hydrometric network and water resource management technical and planning information
- natural and constructed catchment processes that may affect hydrometric network data outputs, quality and eventual interpretation via modelling outputs and resource management and planning decisions
- physical and chemical interactions of resources under varying catchment and climatic conditions and impact on data interpretation and analysis
- mathematical techniques relevant to complex analysis and planning of hydrometric data
- sampling and testing procedures
- OHS legislation, risk management and 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 in hydrometric network planning and water resource management including:

- gathering, interpreting and applying complex documentation related to hydrometric network planning and water resource management processes of organisation
- reviewing and refining current practices used in collecting, analysing, storing and reporting hydrometric data
- planning and setting priorities for the management of hydrometric data collection, storage and reporting
- preparing clear and accurate reports
- contributing to development of short, medium and long-term water resource management planning within 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 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 and cultural issues that may affect responses to the questions, and will reflect 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 on stream sections, both cross and longitudinal
 - geographic information system (GIS) data
 - meteorological data
 - hydraulic analysis data
 - budgetary data
 - catchment water use datasets of actual resource use
 - discharge measurements
 - ratings tables
 - water licence entitlements datasets
 - time series data across data types.
- Processes to collect, analyse, store and report*** hydrometric network data may include:
- downloading, processing, editing, validating, quality-coding and archiving time series data
 - service agreements
 - procedures for establishing and managing ratings tables
 - data network audit tools, processes and software
 - high-level use of database software, including KISTERS and modelling
 - communication of hydrographic information to clients
 - budget development and management processes.
- Mathematical and technical processes*** may include:
- extending rating curves for monitoring sites
 - hydraulic analysis processes
 - physical and chemical interactions analysis
 - dataset extension techniques and processes
 - dataset interpolation techniques and processes
 - dataset creation techniques and processes, such as 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

Leadership.