



Australian Government

Department of Education, Employment and Workplace Relations

NWP519B Develop and report flood mitigation

Revision Number: 1

NWP519B Develop and report flood mitigation

Modification History

Not applicable.

Unit Descriptor

Unit descriptor This unit of competency describes the outcomes required to analyse and model data relating to flooding, develop effective management and warning systems and communicate the outcomes concisely and effectively.

Application of the Unit

Application of the unit This unit supports the attainment of skills and knowledge required for planners and managers in water organisations with responsibility for the preparation of flood management strategies and flood warning systems.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability Skills 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 required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Analyse rainfall and run-off regimes.	<p>1.1 Access and interpret historical rainfall run-off and flooding regimes of specific catchments.</p> <p>1.2 Delineate historical floods.</p> <p>1.3 Model simulated, hypothetical or estimated rainfall intensity data and model catchment.</p> <p>1.4 Collate, manipulate and interpret data.</p>
2 Estimate flooding.	<p>2.1 Use techniques for flood estimation and apply to flood estimation guidelines.</p> <p>2.2 Estimate and record flood levels, extents and flow rates.</p> <p>2.3 Undertake and record flood hazard assessment.</p>
3 Determine management and warning systems.	<p>3.1 Evaluate the roles of storage and/or retarding basins safety and flood attenuation strategies.</p> <p>3.2 Evaluate current flood classifications and impacts and formulate planning controls for flood plain or waterway management.</p> <p>3.3 Evaluate current flood warning systems.</p> <p>3.4 Recommend or develop changes to existing flood plain or waterway management controls and warning systems.</p>
4 Report and communicate recommendations.	<p>4.1 Prepare and present reports in a clear, concise and timely manner to meet organisational requirements.</p> <p>4.2 Communicate findings and recommendations to stakeholders.</p>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills:

- use mathematical techniques to analyse and model flood data
- prepare and plan strategically
- computer skills
- collect and interpret data
- model data
- develop clear and effective reports
- communicate effectively
- interpret data
- manipulate data
- communicate with a range of stakeholders.

Required knowledge:

- catchment hydrology principles
- water flow measurement; flow routing
- relevant legislation, by-laws and planning schemes
- mathematical calculation
- cultural environment
- occupational health and safety and environmental legislation, Acts and procedures.

Evidence Guide

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 analyse and develop flood mitigation warning systems and strategies using the effective:

- collecting relevant data
- analysing relevant data
- modelling data
- developing critical flood warning systems
- developing strategies to mitigate the impact of potential future floods
- preparing clear, concise and timely reports
- communicating data and outcomes to stakeholders and team members.

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

EVIDENCE GUIDE

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

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.

Flooding regimes may include:

- flood levels
- peaks
- flow rates
- area extent
- duration.

Data may include:

- time series data
- historical
- rainfall
- flood levels.

Techniques for flood estimation may include:

- base flow separation
- flood frequency
- rainfall modelling.

Flood hazard assessment may include:

- safety of people
- safety of animals
- land inundation
- house and other property inundation
- effects on communication and other infrastructures
- ability and extent of need for emergency services industry
- cost analysis.

Stakeholders may include:

- community groups
- land holders
- emergency response groups
- town planners
- utility managers (gas, electricity, water)
- local government
- industry and commerce.

Unit Sector(s)

Not applicable.

Competency field

Competency field Common