



Australian Government

NWPCAD012 Route floods through storages

Release: 1

NWPCAD012 Route floods through storages

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 route floods through storages.

It includes managing and conducting surveillance of catchment run-off through dams and other water storage assets, operating flow control infrastructure and ancillary equipment for dam/storage operations and flood routing.

This unit applies to those working as field and operational staff with a specific responsibility for the operation of dams and other water storage assets. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a familiar context, ensuring minimum damage to the environment.

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

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Monitor flow and flood routing

PERFORMANCE CRITERIA

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

1.1 Monitor catchment behaviour during normal and flood conditions according to workplace procedures

	1.2	Determine outflows and inflows using standard flow rate calculations
	1.3	Determine flow control settings based on flow rate calculations and rating tables
2 Prepare for dam or storage operation	2.1	Conduct inspections of dams and relevant assets during floods
	2.2	Develop a hydrograph template for each new event according to workplace procedures
	2.3	Conduct risk assessment and identify hazards
3 Implement dam or water storage operation plans	3.1	Apply operation plans according to workplace procedures
	3.2	Provide flood warnings according to workplace procedures
	3.3	Inspect and test plant and equipment
	3.4	Test, assess and document safety mechanisms
4 Regulate flows	4.1	Plot flood data on hydrograph template according to workplace procedures
	4.2	Regulate flow control mechanisms to maintain safety of asset and required system supply and flood routing
	4.3	Produce data relating to flood performance and report to relevant personnel

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 replaces and is equivalent to NWPSOU027 Route floods through storages.

Links

Companion Volume implementation guides are found in VETNet -

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

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Assessment Requirements for NWPCAD012 Route floods through storages

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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:

- calculating flow rates including:
 - inflow
 - outflow
 - rate of change of storage volume
- collecting and analysing data and technical information
- conducting inspections
- identifying and investigating operational problems
- identifying hazards and conducting a risk assessment
- interpreting and plotting hydrographs
- interpreting plans, drawings, instructions, standard operating procedures, policies and standards
- managing and conducting surveillance of catchment run-off through dams and other water storage assets
- operating controls and ancillary equipment
- operating flow control infrastructure and ancillary equipment
- preparing required reports
- using equipment and instruments
- using safety equipment and personal protective 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 includes knowledge of:

- communication systems relating to data acquisition and flood warnings
- control systems
- dam and storage operation principles
- effects of water and catchment conditions on flow expectations
- effects of weather and conditions on dams and storages
- environmental and social impacts of flood operations

- equipment operation
- hazardous materials handling
- impacts of errors in site measurements on flow calculations
- impact of floods on physical properties of infrastructure
- interrogation of catchment monitoring equipment
- operation of flood gates, valves or other plant
- organisational and statutory requirements
- principles of dam surveillance
- principles of hydraulics through dams
- properties of stored water and energy, wave action and standing waves
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk management techniques
- system hydraulics
- system layout
- water flow measurement

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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