



Australian Government

Department of Education, Employment and Workplace Relations

NWP318A Monitor and operate gated spillways

Revision Number: 2

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Modification History

NWP318A Release 2: Layout adjusted. No changes to content.

NWP318A Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to manage and conduct surveillance of catchment run-off through dams and other water storage assets with gated spillways for dam/storage operations and flood routing.

Application of the Unit

This unit supports the attainment of skills and knowledge required for field and operational staff with a specific responsibility for the operation of dams and other water storage assets with gated spillways.

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 <i>bold italicised</i> text is used, further information is detailed in the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Monitor flow and flood routing.	1.1 Monitor catchment behaviour during normal and flood conditions according to organisational procedures and practices. 1.2 Determine outflow using standard flow rate calculations. 1.3 Determine flow control settings.
2 Plan and prepare for dam or storage operation.	2.1 Correctly apply <i>guidelines and regulatory requirements for dam or water storage operation</i> to operation plans. 2.2 Apply relevant organisational policies, standard operating procedures and incident management plans to dam/water storage operation plans and preparations. 2.3 Conduct inspections according to <i>organisational and statutory requirements</i>.
3 Implement dam / water storage operation plans.	3.1 Apply operation plans according to organisational and statutory requirements. 3.2 Inspect and test <i>plant and equipment</i> according to manufacturer's guidelines and organisational requirements. 3.3 Test, assess and document safety mechanisms.
4 Regulate flows.	4.1 Regulate <i>flow control mechanisms</i> to maintain safety of asset and required system supply and flood routing. 4.2 Produce <i>data</i> relating to system operation and performance according to organisational requirements.

Required Skills and Knowledge

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

Required skills:

- calculate inflow and outflow rates
- interpret and plot graphs
- operate controls and ancillary equipment according to standard operating procedures
- conduct inspections
- coordinate and/or implement operational activities
- interpret plans, drawings, instructions, standard operating procedures, policies and standards
- use safety equipment and personal protective equipment
- use rescue equipment
- use tools and machinery
- identify hazards
- give and receive instructions
- communicate with other employees and customers
- collect and process data
- communicate
- use equipment and instruments
- interpret drawings, diagrams and charts
- produce reports
- inspect and operate instruments

Required knowledge:

- properties of stored water
- system hydraulics
- effects of water and catchment conditions on flow expectations
- interrogation of catchment monitoring equipment
- water flow measurement
- operation of flood gates or plant
- control systems
- dam operation principles
- materials science e.g. corrosion, paint coating
- communication systems
- principles of hydraulics
- system layout
- environmental aspects of operation and maintenance
- lock out procedures for mechanical and electrical installations
- control systems
- equipment operation
- relevant utilities and service bodies

- hazardous materials handling
- effects of weather and conditions on bulkwater assets
- safe dam operating procedures
- principles of dam inspection
- risk management techniques
- occupational health and safety
- personal work site safety
- organisational and statutory requirements

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 manage and conduct surveillance of catchment run-off through dams and other water storage assets including:

- operating gated spillway in conformance with standard operating procedures
- interpreting technical documentation
- identifying and investigating operational problems
- collecting and analysing technical information
- preparing required reports

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

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.

Guidelines and regulatory requirements for dam or water storage operation include:

- International Commission on Large Dams
- Australian National Committee on Large Dams (ANCOLD) guidelines
- storages may include:
 - weirs
 - reservoirs

Organisational and statutory requirements may include:

- Occupational Health and Safety, including the use of personal protective equipment
- environmental laws and policies
- by-laws and organisational policies
- Water Acts
- construction and occupational health and safety regulations
- public safety and disaster plans
- International Commission on Large Dams
- Australian National Committee on Large Dams guidelines
- state government or state committees
- asset management plan

Plant and equipment may include:

- gantry crane operations
- two-way radio

Flow control mechanisms may include:

- sand dams
- temporary dam structures
- diversion of flows
- temporary and permanent bulkhead gates

Data may include:

- operation and maintenance manuals
- past inspection reports
- operation, monitoring and testing records
- observation and associated comments and reports
- original design plans
- design modifications
- construction records and reports
- survey information
- maintenance records
- performance data

Unit Sector(s)

Not applicable.

Competency field

Collection and distribution.