



Australian Government

NWPCAD010 Inspect and report on concrete dam safety

Release: 1

NWPCAD010 Inspect and report on concrete dam safety

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 inspect and report on concrete dam safety.

It includes preparing for and implementing dam safety visual inspections, reporting on conditions, faults in concrete dams and appurtenant structures. It also includes initiating emergency plans.

This unit applies to those with responsibility for the inspection of concrete dams and reporting of faults or trends. Those undertaking this unit would work under appropriate supervision while performing routine tasks in a limited range of familiar contexts.

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 Prepare for concrete dam inspection

PERFORMANCE CRITERIA

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

1.1 Identify and apply relevant organisational requirements relating to concrete dam safety inspection

	1.2	Identify features of concrete dam types and its application to inspected dams
	1.3	Identify concrete dam behaviour under a range of conditions
	1.4	Gather and validate checklists, previous inspection reports and relevant data
	1.5	Schedule activities and gather appropriate equipment for concrete dam inspection according to workplace requirements
2	Inspect and assess the condition of concrete dams	
	2.1	Implement concrete dam visual inspection procedures and practices including for unusual events
	2.2	Inspect and assess condition and performance of concrete dams
	2.3	Recognise, record and assess failure indicators and changes in the condition of the concrete dam and appurtenant structures
3	Report the condition of concrete dams	
	3.1	Collect and record measurements and evidence to determine the extent of changes in conditions
	3.2	Prepare and submit reports to relevant personnel according to workplace procedures
4	Activate emergency plans	
	4.1	Determine if faults and changes trigger a dam safety incident
	4.2	Initiate and follow emergency plan according to workplace procedures

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 NWPSOU024 Inspect and report on concrete dam safety.

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 NWPCAD010 Inspect and report on concrete dam safety

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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:

- applying safety protocols
- assessing the importance and urgency of deficiencies
- collecting and processing data from dam observations
- communicating with engineering professionals and relevant team members on dam safety
- conducting concrete dam inspection activities
- gathering and recording data
- identifying changes and failure indicators in concrete dam and appurtenant structures
- identifying inspection features and scheduling activities according to the required frequency
- identifying the purpose and audience of dam safety reports
- interpreting and applying relevant organisational and regulatory information and requirements to the planning of inspection activities
- planning and organising work schedules and responses to contingencies
- producing inspection reports
- reporting on inspection and monitoring outcomes, with recommendations for action
- using digital photography and locational 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:

- concrete dam behaviour under a range of conditions
- concrete dam design and construction principles including:
 - aging of concrete
 - concrete technology
 - hydraulics
 - materials science
 - post tensioning principles
 - principles of arch action

- principles of buttress action
- principles of gravity action
- principles of roller compacted concrete
- treatment of foundations, grouting and drainage systems
- concrete dam types including:
 - arch
 - buttress
 - gravity
- dam safety
- emergency plans
- historic information and lessons from previous concrete dam incidents
- principles of concrete dam inspection
- relevant legislation and regulations
- unusual events including:
 - earthquakes
 - increased seepage
 - large wave events
 - large discharge events uplift pressures and drainage systems
- workplace policies, procedures, guidelines and requirements relevant to the worksite

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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