



Australian Government

Department of Education, Employment and Workplace Relations

NWP303A Monitor and control maintenance of water and wastewater system assets

Revision Number: 2

NWP303A Monitor and control maintenance of water and wastewater system assets

Modification History

NWP303A Release 2: Layout adjusted. No changes to content.

NWP303A Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to inspect and assess asset maintenance and repairs and to produce plans for and monitor and report on maintenance and repair work completion. The ability to identify faults, gather data, interpret technical information, assess risks and produce technical work plans, costings and reports are essential to performance.

This unit covers the competencies previously covered in:
NWP334B, NWP335B, NWP336B and NWP337B.

Application of the Unit

This unit covers a generic competency for field staff with responsibility for ensuring that water collection, distribution, storage and transfer assets are regularly monitored and conducting scheduled maintenance and repair work on assets.

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 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 Analyse asset condition and determine remedial action.	1.1 Schedule routine inspections of <i>assets</i> and monitor fault reporting according to <i>organisational procedures</i>. 1.2 Collect and analyse data on asset and infrastructure condition according to organisational procedures. 1.3 Determine and cost asset maintenance and repair methods. 1.4 Correctly select <i>equipment</i> and fit and use required safety equipment, including personal protective equipment.
2 Plan and prepare for asset repair.	2.1 Schedule and plan work site investigations and repair activities according to organisational requirements. 2.2 Develop repair plans and procedures and communicate to all stakeholders. 2.3 Assess and record environmental and occupational health and safety risks according to enterprise requirements and specify appropriate preventative measures. 2.4 Select equipment, materials, prefabricated components and fittings and make available for use on site.
3 Monitor and report maintenance activities.	3.1 Monitor repairs to ensure compliance with organisational and statutory requirements. 3.2 Monitor repair and maintenance progress and keep records according to organisational procedures. 3.3 Inspect, confirm and report completion of repair and maintenance according to organisational procedures.
4 Complete records and reports.	4.1 Complete workplace records and reports according to organisational requirements. 4.2 Make recommendations which contribute to the continuous improvement and quality of the organisation's systems.

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills:

- identify and correct operational problems
- undertake maintenance planning activities
- undertake calculations and determine work requirements
- monitor system operations and processes
- produce reports and logs
- use safety equipment and personal protective equipment
- interpret plans and instructions
- interpret the organisation's policies, standard operating procedures and standards for monitoring and maintenance of assets
- communicate with employees and customers
- use communication equipment
- give and receive instructions
- calculate water pressures and flows
- identify and report control system faults

Required knowledge:

- environmental aspects of water distribution systems and infrastructure
- organisational occupational health and safety procedures
- lock out procedures for mechanical and electrical installations
- cleaning and protection of assets
- policies and standard operating procedures for monitoring and maintenance of assets
- relevant utilities and service bodies
- communication systems
- environment, landscape and ground structure of work area
- risk factors and potential hazards involved with water pressures and flows
- equipment operation, capacity and limitations
- effects of weather and conditions on operation of supply infrastructure
- system pipes and fittings
- pumping and valving systems
- system layout
- system processes
- system operation
- gravity systems
- control systems

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, 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 inspect and assess asset maintenance and repairs and to produce plans for and monitor and report on maintenance and repair work completion including:

- conducting operational and maintenance inspections
- monitoring fault reports
- collecting and analysing operational and mechanical data
- identifying and assessing work methods effectiveness
- planning investigations and repairs
- developing repair procedures
- assessing risks and specifying preventive methods
- selecting equipment, materials, prefabricated components and fittings
- monitoring repairs
- inspecting completed repairs
- completing workplace records

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
- workplace specific equipment and technology
- supervision and experienced team members to provide observations, feedback and third party reports
- enterprise operating procedures and work allocation
- 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 require 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 only taken at the point 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, 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. 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) may also be included.

Assets may include:

- infrastructure in urban or rural locations
- pumping stations
- filtration, treatment and related infrastructure
- service reservoirs
- channel and canal systems and related infrastructure
- pipes, including:
 - polyvinyl chloride (PVC)
 - polyethylene
 - mild steel cement lined
 - ductile iron cement lined
 - cast iron
 - copper
 - glass reinforced plastic
 - vitrified clay
 - reinforced concrete
 - asbestos cement
- structures, including:
 - meter pits
 - person access pits
 - regulators
 - erosion barriers
 - head walls
 - thrust blocks
 - drop structures
 - siphons
 - meter outlets
 - prefabricated sections, including:
 - drainage sections
 - drainage pits
 - culverts
 - under road crossovers
- fittings, including:
 - jointing systems for pipe types e.g. gibault

- tapping band
 - tension bands
 - solvent joins
 - compression ring joints
 - bolted flanges
 - malleable jointing materials
 - electrofusion
 - butt welding
 - cathodic protection
 - irrigation systems
 - drainage systems
- Organisational procedures** may include:
- organisational policies
 - standard operating procedures
 - environment protection
 - occupational health and safety
 - lifts and cranes
 - mines
 - road signage code
 - electrical
 - marine
 - chemicals
 - dangerous goods
- Equipment** used may include:
- hand and power tools
 - lifting and winching equipment
 - mechanical excavation equipment
 - levering equipment
 - closed circuit television
 - hydraulic and/or vacuum set-ups
 - pneumatic and motorised equipment:
 - pneumatic spades and attachments
 - pipes and associated fittings
 - motorised cutting equipment
 - on- and off-road vehicles
 - portable pumps
 - compressors
 - chemical spraying apparatus
 - small marine craft
 - trenching systems
 - portable pumps
 - communication equipment
 - breathing apparatus

- gas detection equipment
- communication equipment
- rescue equipment
- appropriate personal protective equipment

Unit Sector(s)

Not applicable.

Competency field

Asset management.