Australian Government

Department of Education, Employment and Workplace Relations

NWP363B Monitor performance and control maintenance of treatment plant assets

Revision Number: 2

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Modification History

NWP363B Release 2: Layout adjusted. No changes to content.
NWP363B Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to monitor the performance of pipes, pumps, valves and controlling equipment in treatment plants and to plan and conduct maintenance and repair of water and wastewater treatment plant assets to optimise plant performance. The ability to gather and analyse technical data, conduct risk assessments, evaluate maintenance requirements and prepare maintenance plans, perform technical maintenance activities and prepare technical reports are essential to performance.

Application of the Unit

This unit supports the attainment of skills and knowledge required for operational staff with a specific responsibility for ensuring that treatment plants are maintained in good condition and that equipment performs to the optimum standards.

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 ***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 Inspect, record and analyse asset condition.	1.1 Schedule ***routine inspections*** of assets and monitor fault reporting according to ***organisational and statutory requirements***. 1.2 Collect and analyse data on assets and infrastructure condition according to organisational procedures. 1.3 Determine and cost asset maintenance and repair methods.
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 and determine and apply preventative measures according to organisational requirements. 2.4 Correctly select, fit and use required safety equipment, including personal protective equipment.
3 Control and monitor work activities.	3.1 Inspect materials and ***equipment*** and monitor materials handling and repairs to ensure compliance with organisational requirements. 3.2 Locate and remove system chokes and blockages to achieve maximum system performance. 3.3 Repair or replace leakages and/or damaged pipes and fittings according to organisational requirements. 3.4 Clean the plant and surrounds to meet organisational and environmental requirements.
4 Complete maintenance and repair records.	4.1 Monitor repair and maintenance progress. 4.2 Record and process repair and maintenance activities according to organisational procedures.

Required Skills and Knowledge

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

Required skills:

- solve operational problems
- conduct fault finding
- undertake maintenance
- produce reports and logs
- use safety and personal protective equipment
- use tools and machinery
- interpret plans, charts and instructions
- interpret policies, procedures and standards
- communicate with employees and customers
- use communication equipment
- give and receive instructions
- apply construction techniques
- identify control system faults
- adjust mechanical and electrical systems

Required knowledge:

- finding techniques
- system layout
- lock out procedures for mechanical and electrical installations
- relevant utilities and service bodies
- preventative maintenance
- breakdown maintenance
- mechanical seals
- corrosion protection
- lubrication
- communication systems
- materials handling
- environment, landscape and ground structure of work area
- risk factors and potential hazards
- equipment operation, capacity and limitations
- effects of weather and conditions on operation of site or plant
- construction techniques and jointing systems
- control systems
- pipes and fittings

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 optimise plant performance by:

- scheduling inspection and monitoring fault reports
- collecting and analysing data
- selecting and costing maintenance and repair methods
- planning repair activities
- developing and applying repair procedures
- assessing and managing risks
- inspecting materials
- monitoring and recording repairs

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 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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs if the candidate, accessibility of the item, and local industry and regional contexts.

Routine inspections may include:

- inspection of pipes, including:
  - polyvinyl chloride (PVC)
  - galvanised wrought iron
  - polyethylene
  - cast iron
  - mild steel cement lined
  - ductile iron
  - clay
  - asbestos cement
  - concrete
  - steel
- inspection of fittings, including:
  - jointing systems for pipe types, e.g. gibault
  - tension bands
  - solvent joints
  - mechanical seals
  - compression ring joints
  - valves
- inspection of mechanical equipment, including:
  - pumps
  - blowers
  - compressors
  - gearboxes
  - rakes
  - motors
  - pressure vessels
  - mixers
  - chemical feeders
  - actuators

Organisational and statutory requirements may include:

- by-laws or organisational policies
- standard operating procedures
- environment protection
- Australian Drinking Water Guidelines

- National Water Quality Management strategy
- occupational health and safety, including use of personal protective equipment
- lifts and cranes
- mines
- electrical standards
- dangerous goods
- chemicals
- World Health Organisation standards
- Environment Protection Authority regulations

Equipment may include:

- hand and power tools
- lifting and winching equipment
- electric and gaseous welding equipment
- closed circuit television
- electronic and manual controlling equipment
- pneumatic and motorised equipment:
  - compressors
  - pneumatic tools
  - motorised saws
  - grinders
  - pumps
- communication equipment
- personal protective equipment

Unit Sector(s)

Not applicable.

Competency field

Asset management.