Australian Government

Department of Education, Employment and Workplace Relations

NWP609 Manage assets in a water utility

Release: 1

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Modification History

NWP609 Release 1: Primary release.

Unit Descriptor

This unit of competency describes the skills and knowledge required to manage the hydraulic assets in a water utility including the monitoring, maintenance, repair, replacement, valuation and recording of assets.

Application of the Unit

The unit applies to people responsible for developing and implementing monitoring programs for the hydraulic assets of a water utility.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

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 tasks you need to be able to perform, to demonstrate that you can achieve 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 Monitor assets	1.1 Develop a ***monitoring program*** for individual assets within an ***asset class.***
	1.2 Prepare a scope of works and specification and issue a work order for the ***monitoring.***
	1.3 Receive and analyse the monitoring data and close out the work order.
	1.4 ***Determine the likelihood of failure*** of the individual assets and record the asset condition and likelihood of failure in the company's asset management system.
	1.5 Adjust the frequency of the monitoring of the individual assets within the asset class based on conditions of the assets and where applicable recommend a course of action for the individual assets.
2 Maintain assets	2.1 Determine the maintenance requirements for individual assets within an asset class.
	2.2 Prepare a maintenance program and specification and issue a work order for the maintenance.
	2.3 Assess the maintenance completion report and the recording of maintenance in company's asset management system and close out the work order.
3 Repair assets	3.1 Determine the repair requirements for individual ***assets*** within an asset class.
	3.2 Identify the materials, resources and equipment required to undertake the repair and issue a work order for the repair.
	3.3 Assess the repair completion report and the recording of the repair in the company's asset management system and close out the work order.
4 Replace assets	4.1 Determine the need for replacement for individual assets within an asset class.
	4.2 ***Estimate the cost*** of the replacement and obtain approval to proceed.
	4.3 Prepare an asset replacement plan and specification for a particular item of asset and issue a work order for the replacement.
	4.4 Assess the replacement report and the recording of the repair in the company's asset management system and close out the work order.
5 Record assets	5.1 Identify and record specific details of an individual asset within an asset class.
	5.2 Assess whether the asset is recorded correctly in the company's asset management system.
	5.3 Identify missing asset details, search company archives for the

ELEMENT	PERFORMANCE CRITERIA
	missing information and where necessary arrange for field survey to provide the missing information.
6 Value assets	6.1 Determine the condition of an individual asset within an asset class using information from the asset management system.
	6.2 Determine the residual life of the individual asset using the manufacturer's specifications, the risk management policies of the company and the known condition of the asset.
	6.3 Calculate the current and replacement value of the asset using information from the estimating system.

Required Skills and Knowledge

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

Required skills:

- interpret asset related policies and procedures
- interpret design drawings and specifications
- interpret manufacturers product catalogues and information sheets
- undertake arithmetic and algebraic calculations (including the use of powers)
- prepare work orders and simple specifications
- interpret completion reports and match to work orders and specifications
- operate a work management system and geographic information system
- use spreadsheets to perform intermediate level calculations

Required knowledge:

- company's asset management policies and procedures
- company's risk management procedures
- configuration of pipeline systems including fittings, flow control devices and connections
- pipeline systems manufacturers specifications
- company's asset management system, asset database and work management system
- company's estimating policies, procedures and database
- asset related paper archives and other asset recording systems
- asset valuation methods and residual life estimation

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:

- determine the condition of an asset based on field evidence and an analysis of its history
- determine the need for and specify the maintenance of an asset check the maintenance has been carried out and recorded
- determine the need for and specify the repair of an asset check the repair has been carried out and recorded
- determine the need for and specify the replacement of an asset check the replacement has been carried out and recorded
- record and asset in an asset management system
- determine the residual value of an asset

Context of and specific resources for assessment

Access to the workplace and resources which may include:

- documentation that should normally be available in a water utility including standards, codes, guides, manual and operating procedures
- workplace specific technology
- experienced practitioners or supervisors

Where applicable, physical resources should include equipment modified for people with disabilities. Access must be provided to appropriate learning and 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 candidate and cultural issues that may affect responses to the questions, and will reflect the requirements of the competency and the work being performed.

Method of assessment

The following methods are suggested:

- assignment(s) for one or more of the elements
- assessment in the workplace or in a simulated workplace and under the normal range of workplace conditions

Guidance information for assessment

Assessment processes and techniques must be culturally appropriate and appropriate to the language and literacy capacity of the candidate 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.

Monitoring program may include:	• types and frequency of remote monitoring and in-situ monitoring of assets in a water utility • analysing of the historical asset performance data of a water utility
Asset class may include:	• storages • pipelines • pump stations • property connections
Monitoring may include:	• inspection • acoustic sounding • closed circuit television • historical performance data analysis • resistivity testing
Determining the likelihood of failure may include:	• identifying generic types of failures of water utility assets • measures of the likelihoods of failures • ways to estimate the likelihoods of failures
Assets may include:	• pipelines • pump stations • water or sewage processing equipment • valves • access chambers and tanks • dams • reservoirs • storages
Estimate the costs may include:	• the use of real and nominal dollars • the methods of estimation • the use of provisions • the use of contingencies • the inclusion of uncertainty in the form of contingent risk and inherent risk

Unit Sector(s)

Not applicable.

Competency Field

Civil Engineering.