



Australian Government

Department of Education, Employment and Workplace Relations

NWP546B Develop and review water treatment process management plan

Revision Number: 2

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Modification History

NWP546B Release 2: Layout adjusted. No changes to content.

NWP546B Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to develop and review the management plan for the treatment of raw water supplies to potable standards.

Application of the Unit

This unit supports the attainment of skills and knowledge required for managers in water organisations with responsibility for the implementation of water treatment management plans.

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 Plan and prepare for water treatment.	1.1 Identify and interpret treatment plant management requirements, including legislative and enterprise policies. 1.2 Identify and assess process capability and performance design. 1.3 Access, review and interpret historic information, relevant to the treatment of water. 1.4 Identify and interpret <i>issues</i> that impact on the treatment of water. 1.5 Identify and interpret stakeholder and <i>customer</i> requirements that impact on the treatment processes. 1.6 Identify and interpret water catchment impacts.
2 Develop a water treatment management plan.	2.1 Identify and interpret water quality and quantity requirements according to legislative and enterprise procedures. 2.2 Identify and assess <i>environmental factors</i> that impact on the treatment of water. 2.3 Identify, specify and monitor <i>testing</i> and <i>monitoring</i> procedures according to organisational requirements. 2.4 Monitor information that impacts on the planning process according to enterprise procedures. 2.5 Identify, quantify and define available resources. 2.6 Prepare and present the water treatment management plan.
3 Review and refine the water treatment management plan.	3.1 Identify deviations from the treatment management plan. 3.2 Identify and evaluate system changes to meet the requirements of the treatment management plan. 3.3 Report and recommend changes to the treatment management plan according to legislative and organisational requirements. 3.4 Incorporate accepted recommendations into the updated and modified treatment management plan. 3.5 Implement changes to the treatment management plan.
4 Complete documentation.	4.1 Maintain records of plant and system data according to organisational and statutory requirements. 4.2 Report observations outside defined parameters for further action.

Required Skills and Knowledge

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

Required skills:

- communicate effectively
- plan effectively
- prepare reports
- interpret and apply legislation and policies
- coordinate measuring and testing activities
- use mathematical and scientific techniques to interpret test results
- conduct investigations
- assess environmental impacts

Required knowledge:

- relevant legislation
- range of appropriate measuring and testing procedures
- investigation procedures
- risk management principles
- customer expectations and requirements
- environmental legislation
- enterprise financial systems and key performance indicators
- occupational health and safety legislation

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 develop and review the management plan for the treatment of raw water supplies to potable standards including:

- gathering, interpreting and synthesising information (including historical data, current legislation and standards, stakeholder views and the results of water treatment system testing and monitoring) to underpin the implementation of the water treatment processes management plan
- planning and implementing testing processes and programs
- monitoring and evaluating the outcomes of the water treatment processes management plan
- providing advice and communicating with stakeholders and users
- preparing reports and recommendations for future action

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

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 of the candidate, accessibility of the item, and local industry and regional contexts.

Issues and/or resources to be considered may include:

- chemicals used/usage
- electricity used/usage
- gas used/usage
- people available
- technical skills and training
- funds available for capital and/or operation
- maintenance standards of plant and equipment
- maintenance procedures and schedules
- previous risk assessments
- union expectations
- community expectations
- the natural environment
- the built environment
- occupational health and safety requirements

Customers may include:

- individual consumers
- regulators
- suppliers
- government
- community or specific enterprises
- industry
- rural consumers
- internal and external customers

Environmental factors that impact on the treatment process may include:

- flora
- fauna
- organic and inorganic chemicals
- salinity (in a marine environment)
- nutrients
- oils and greases
- pesticides
- trade waste
- upstream communities and activities
- natural events (e.g. floods, fires)
- algae
- micro-organisms

Testing may include, but not be limited by:

- geology of catchment
- tastes and odours
- physical analysis of water:
 - pH
 - conductivity
 - colour
 - turbidity
- chemical analysis of water:
 - chlorine
 - alkalinity
 - chemical oxygen demand
 - heavy metals
 - iron
 - manganese
- microbiological analyses:
 - coliforms
 - plate counts
 - algae identification and counts
- physical measures:
 - power
 - chemicals
 - water flows
 - sludge volumes
- mechanical testing:
 - vibration
 - noise
 - temperature

Monitoring may include:

- process control monitoring
- mechanical and electrical maintenance schedules
- mechanical and electrical equipment condition
- licensing requirements
- legislative requirements
- chemical, physical, biological and microbiological quality

Unit Sector(s)

Not applicable.

Competency field

Treatment.