Australian Government

Department of Education, Employment and Workplace Relations

NWP366A Monitor, operate and control chloramination disinfection processes

Revision Number: 2

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Modification History

NWP366A Release 2: Layout adjusted. No changes to content.
NWP366A Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to monitor, operate and control chloramination processes; and to measure and report on system performance and process quality control. The ability to identify faults, determine and apply technical adjustments and produce 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 chloramination processes conform to organisational standards and comply with statutory requirements.

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 Monitor chloramination process performance.	1.1 Conduct and analyse process ***tests*** and compare performance to plant operational requirements. 1.2 Identify and report process faults and the operational condition of plant according to ***organisational and statutory requirements***.
2 Operate and control chloramination processes.	2.1 Carry out ***routine plant inspections*** out according to organisational and plant requirements. 2.2 Make ***process adjustments*** to optimise system performance according to organisational requirements. 2.3 Collect, interpret and record process data according to organisational and plant requirements.
3 Prepare and apply chloramination chemical dosing.	3.1 Use, handle and store ***chemicals*** according to organisational requirements. 3.2 Prepare chemical dosing according to system specifications and organisational requirements. 3.3 Maintain information related to chlorine and ammonia supply and usage according to organisational requirements.
4 Compile chloramination process reports.	4.1 Compile ***reports*** from plant and system data to meet organisational 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:

- identify and correct operational problems
- produce reports and logs
- use safety and personal protective equipment
- interpret plans, charts and instructions
- interpret policies, procedures and standards
- communicate with employees and/or customers
- use communication equipment
- give and receive instructions
- determine process requirements
- operate control and chemical dosing equipment
- perform chloramination process calculations
- collect samples and conduct tests

Required knowledge:

- microbiological aspects of water quality
- chloramination process theory
- chlorine and ammonia dosing equipment
- operational problems such as nitrification
- lock out procedures for mechanical and electrical installations
- policies, procedures and legislation
- communication systems
- hazardous materials handling
- material safety data sheets
- risk factors and potential hazards associated with chloramination processes
- equipment operation, capacity and limitations
- mechanical and electrical 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, 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 monitor, operate and control chloramination systems, including:

- analysing tests
- identifying and reporting process and operational faults
- monitoring chloramination systems
- making appropriate system adjustments
- collecting and reporting process data
- preparing and applying chloramination chemical dosing.
- producing reports.

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

Tests may include:

- chlorine residual analysis, including:
  - total residual chlorine
  - monochloramine
  - dichloramine
- ammonia and hypochlorite strength
- pH

Organisational and statutory requirements may include:

- by-laws and organisational policies
- standard operating procedures
- environment protection
- occupational health and safety, including use of personal protective equipment
- Australian Drinking Water Guidelines
- National Water Quality Management Strategy
- hazardous substances
- lifts and cranes
- World Health Organisation standards
- licensing agreements
- Environment Protection Authority regulations

Routine inspection of plant may include:

- use of equipment, including:
  - electronic monitoring and metering systems
  - chart recording systems
  - basic hand tools
  - sampling and laboratory testing equipment
  - computerised equipment
  - personal protective equipment
- interaction and communication with other employees, other authorities and the general public
- visual observation
- implementation of reporting procedures that may also include procedures for the implementation of by-laws, organisational policies and statutory requirements

Process adjustments may include:	• flow rate • chlorine feed rate • ammonia feed rate • chlorine to ammonia ratio • calibration of chemical dosing equipment
Chemicals may include:	• liquefied chlorine gas • sodium hypochlorite • anhydrous ammonia • aqua ammonia • pH correcting chemicals such as lime soda ash, sodium hydroxide
Reports may include:	• organisational reports • environmental reports • chemical usage • plant performance data

Unit Sector(s)

Not applicable.

Competency field

Treatment.