Australian Government

Department of Education, Employment and Workplace Relations

NWP268B Monitor, operate and report chlorine disinfection systems

Revision Number: 2

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Modification History

NWP268B Release 2: Layout adjusted. No changes to content.
NWP268B Release 1: Primary release.

Unit Descriptor

This unit of competency describes the outcomes required to monitor and operate chlorine disinfection systems and to report on process quality control.

Application of the Unit

This unit supports the attainment of skills and knowledge required for operational staff with specific responsibility for ensuring that chlorine disinfection systems comply with organisational requirements. For staff working on chlorine disinfection systems where liquefied chlorine gas is used, the unit NWP277A Work safely with liquefied chlorine gas, is essential.

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 work.	1.1 Determine work requirements according to ***legislative and organisational requirements***. 1.2 Select and check ***equipment*** required to meet safety requirements of task and site. 1.3 Select, fit and use personal protective equipment.
2 Monitor systems performance.	2.1 Monitor chlorine ***disinfection systems*** according to agreed schedule and procedures. 2.2 Collect process samples and conduct standard ***tests***. 2.3 Maintain and monitor relevant OHS requirements. 2.4 Collect and report process data according to organisational and disinfection system requirements. 2.5 Make system adjustments as required to maintain effectiveness of chlorine disinfection.
3 Prepare and apply chemical dosing.	3.1 Handle, use and store ***chemicals*** according to environmental and organisational requirements. 3.2 Prepare chemical dosing according to system specifications and organisational requirements and apply using appropriate ***chlorine dosing equipment***. 3.3 Maintain information related to chlorine supply and usage according to statutory requirements.
4 Complete documentation.	4.1 Compile records 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 respond to operational and process faults with chlorine dosing equipment problems
- produce reports and logs
- use safety and personal protective equipment
- follow plans, charts and instructions
- apply policies, standard operating procedures and regulatory standards
- collect and test samples
- communicate with employees and customers
- work effectively as part of a team
- use communication equipment
- give and receive instructions
- perform work-related calculations
- prepare and apply chlorine dosing
- operate computerised equipment
- identify control system faults
- identify hazards
- perform microbiological and chlorine residual sampling
- use literacy skills in regard to verbal and written communication in the workplace
- interpret material safety data sheets (MSDS)

Required knowledge:

- properties and chemistry of chlorine
- pH
- microbiological water quality guidelines
- chlorine system layout
- lock-out procedures for mechanical and electrical installations
- policies, standard operating procedures and legislation
- communication systems
- hazardous substances handling
- risk factors and potential hazards associated with chlorination
- work-related chlorine calculations
- chlorine dosing processes
- equipment operation, capacity and limitations
- pumping and valving systems
- automatic feed rate control systems
- MSDS

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 report on chlorine disinfection systems by:

- scheduling work
- selecting and using appropriate tools and equipment, including personal protective equipment
- monitoring chlorine disinfection systems
- collecting process samples and performing standard tests
- collecting and reporting process data
- preparing and applying chlorine dosing safely
- 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 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 and cultural issues that may affect responses to the questions, and will reflect 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.

Legislative and organisational requirements may include:	• relevant federal and state or territory legislation and regulations • codes of practice, associated standards and guidance material • documented organisational policies, manuals and induction programs • relevant community planning and development agreements, such as land care agreements
Equipment may include:	• electronic monitoring and metering systems • recording systems • basic hand and power tools • sampling and laboratory testing equipment • computerised equipment • on- and off-road vehicles • communication equipment • personal protective equipment
Disinfection systems may include:	• liquefied chlorine gas • sodium hypochlorite • calcium hypochlorite
Tests may include:	• chlorine residuals • pH

Chemicals may include:	• liquefied chlorine gas
	• sodium hypochlorite
	• calcium hypochlorite
	• pH correcting chemicals, such as:
	  • sodium hydroxide
	  • lime
	  • soda ash

Chlorine dosing equipment may include:	• vacuum gas or liquid chlorinator • hypochlorite dosing pump • calcium hypochlorite tablet dispenser

Unit Sector(s)

Not applicable.

Competency field

Treatment.