



Australian Government

NWPTRT052 Operate and control hypochlorite disinfection processes

Release: 1

NWPTRT052 Operate and control hypochlorite disinfection processes

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP268B Monitor, operate and report chlorine disinfection systems. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • Elements 2 and 3 reworded • One new PC added to Elements 1 and 3 • PC 2.3 removed • PC 3.1 revised and renumbered • PC 2.4 and 3.3 renumbered • PC 3.2 and 4.1 revised

Application

This unit describes the skills required to monitor and operate hypochlorite disinfection systems and report on process quality control. This includes the skills required to working safely with sodium hypochlorite solutions and calcium hypochlorite solids, including their safe handling, transport and storage and implementation of emergency response procedures.

This unit applies to those working as operational staff with specific responsibility for hypochlorite disinfection systems in water and wastewater treatment plants.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those related to WHS and handling of dangerous goods.

Those undertaking this unit would work under supervision, while performing routine tasks, in a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Treatment

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Plan and prepare for work	1.1 Determine work requirements from job specification and plans. 1.2 Select and check equipment and hypochlorite supplies to meet safety requirements of task and site. 1.3 Select, fit and use personal protective equipment. 1.4 Handle and store hypochlorite chemicals to maximise shelf life and reduce loss of available chlorine. 1.5 Conduct the percentage available chlorine test.
2. Monitor process performance	2.1 Monitor hypochlorite disinfection <i>processes</i> according to agreed schedule and procedures. 2.2 Collect samples and conduct process tests. 2.3 Make process adjustments as required to maintain effectiveness of hypochlorite disinfection.
3. Apply chemical dosing	3.1 Prepare and apply hypochlorite chemicals. 3.2 Control hypochlorite <i>dosing</i> to maintain required residual.
4. Complete documentation	4.1 Maintain information relating to hypochlorite supply and usage. 4.2 Collect and record process data. 4.3 Report observations outside defined parameters for further action.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Range of Conditions

Processes include:	- sodium hypochlorite solution - sodium hypochlorite
Technologies include:	- calcium hypochlorite granules - calcium hypochlorite tablets
Dosing procedures include:	- chlorinator shutdown, start up and isolation - purging operations - leak testing - dosing pump checks

Unit Mapping Information

This unit supersedes and is equivalent to NWP268B Monitor, operate and report chlorine disinfection systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT052 Operate and control hypochlorite disinfection processes

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. The candidate must be assessed in at least one type of process, in at least one type of technology and in at least one type of dosing procedure listed in the Range of Conditions. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- applying policies, standard operating procedures and regulatory standards
- performing work-related calculations
- identifying and responding to process faults and control system faults
- identifying hazards
- performing hypochlorite tests and chlorine residual sampling and testing
- interpreting safety data sheets (SDS)
- monitoring, operating and reporting on hypochlorite disinfection systems
- selecting and using appropriate tools and equipment, including personal protective equipment
- collecting and reporting process data
- preparing and applying hypochlorite dosing safely
- performing process calculations, including at least one of:
 - feed rate
 - dosage
 - Ct

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- properties and chemistry of hypochlorite chemicals
- effects of pH, time, temperature, UV exposure and impurities on hypochlorite breakdown
- microbiological guidelines
- reactions with water to produce hypochlorous acid/hypochlorite ion
- impact of pH
- chlorine demands, including:
 - ammonia
 - natural organic matter (NOM)
 - turbidity
 - iron, manganese and nitrite
- disinfection by-products (DBP)
- breakpoint
- contact time
- hypochlorite dosing system layout for sodium hypochlorite and/or calcium hypochlorite dosing systems
- hazardous substances handling
- risk factors and potential hazards associated with hypo chlorination
- work-related hypochlorite calculations
- hypochlorite dosing processes
- automatic feed rate control systems
- SDS

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Some components of this unit require assessment in a workplace environment therefore the unit is not suitable for fully external or electronic based assessment.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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