



Australian Government

NWPTRT067 Assess and optimise chemical dosing processes in wastewater

Release: 1

NWPTRT067 Assess and optimise chemical dosing processes in wastewater

Modification History

Release 1. This is the first release of this unit of competency in the NWP - National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve chemical dosing processes in wastewater.

It includes reviewing, facilitating and optimising chemical addition processes and evaluating and reporting on system performance and process quality control.

This unit applies to those working as technical staff with a responsibility for optimising chemical addition processes in wastewater treatment. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

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

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Evaluate chemical addition process

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Review existing process performance data against

performance	organisational operating protocol
	1.2 Identify the impact of changing feed characteristics on chemical addition processes 1.3 Identify any additional sampling and testing required for valid evaluation of current process performance
2 Investigate chemical addition plant configuration	2.1 Assess existing fault reports and other plant asset information 2.2 Investigate the operational status of plant components with reference to manufacturer and plant design specifications 2.3 Contribute to plant configuration investigations to identify potential deficiencies 2.4 Identify hazards, assess risks and control measures according to workplace procedures
3 Investigate chemical options for process optimisation	3.1 Review current chemical addition practices with reference to organisational protocol to identify potential deficiencies 3.2 Investigate dosing options for current chemicals 3.3 Identify and investigate tests to assess effectiveness of existing or alternative chemicals and related dosing options
4 Develop and record a plan for process optimisation	4.1 Determine plant configuration or chemical options for process optimisation 4.2 Plan a trial to test the performance of the determined optimisation options 4.3 Compile report with recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the NWP - National Water Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT067 Assess and optimise chemical dosing processes in wastewater

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and include:

- analysing and evaluating reports and reference materials
- analysing problems and recommending appropriate remedial solutions
- assessing effectiveness of treatment chemicals by conducting a range of tests
- assessing fault reports and investigating the current operational status of plant components
- conducting investigations and reporting on operational and control system problems
- identifying and responding to risks and hazards
- identifying data deficiencies and plan additional data collection through appropriate sampling and testing
- identifying opportunities for improved treatment
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- investigating chemicals and current and potential chemical addition practices
- operating a chemical dosing process
- planning trials to test the performance of the determined optimisation options and compiling recommendation reports
- reviewing existing process performance with reference to historical or seasonal data, differences in influent characteristics and process configuration

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- chemical addition plant and equipment
- chemical concepts and reactions relevant to chemical addition processes

- chemical dosing system layout
- dosing pump capacity and calibration chart including:
 - detention times
 - draw down tests
 - mixing intensity
- factors affecting the selection of chemicals in chemical addition processes
- factors influencing the effectiveness of chemicals in chemical addition processes
- functions of various chemicals in chemical addition processes
- identify chemical dosing points
- impacts of incorrect dosing
- interpreting a range of complex and technical documents including:
 - codes and standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- range and characteristics of chemicals used in chemical addition processes
- range of appropriate measuring and testing procedures
- relevant legislation, industry standards and workplace policies and procedures
- risk and hazard management principles relating to chemical dosing processes including safety data sheets, site manifests and dangerous goods handling
- workplace reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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