



**Australian Government**

# **NWPTRT064 Assess and improve sedimentation processes**

**Release: 1**

# NWPTRT064 Assess and improve sedimentation processes

## 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 sedimentation processes.

It includes evaluating system performance and investigating and reporting on the optimisation of sedimentation and clarification processes.

This unit applies to those working as technical staff with responsibility for optimising sedimentation and clarification processes in water and wastewater treatment plants. 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 Assess sedimentation and clarification process performance**

### PERFORMANCE CRITERIA

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

**1.1** Review existing process performance data against organisational operating protocol

- |                                                             |            |                                                                                                                              |
|-------------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------|
|                                                             | <b>1.2</b> | Identify the impact of changing incoming water quality on sedimentation and clarification processes in a range of conditions |
|                                                             | <b>1.3</b> | Identify any additional sampling and testing required for valid evaluation of current process performance                    |
| <b>2 Investigate sedimentation and clarification assets</b> | <b>2.1</b> | Review existing fault reports and other plant asset information                                                              |
|                                                             | <b>2.2</b> | Investigate the operational status of plant components with reference to manufacturer and plant design specifications        |
|                                                             | <b>2.3</b> | Conduct investigations to identify potential deficiencies in asset performance                                               |
|                                                             | <b>2.4</b> | Identify hazards, assess risks and control measures according to workplace procedures                                        |
| <b>3 Investigate process optimisation</b>                   | <b>3.1</b> | Review relevant fault and incident reports and remedial actions taken                                                        |
|                                                             | <b>3.2</b> | Investigate potential changes to operational processes to identify possible optimisation strategies                          |
| <b>4 Plan process optimisation</b>                          | <b>4.1</b> | Determine plant configuration and revised operational processes for process optimisation                                     |
|                                                             | <b>4.2</b> | Plan a trial to test the performance of the determined optimisation options                                                  |
|                                                             | <b>4.3</b> | Compile a report making 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 Companion Volume Implementation Guide.

## Unit Mapping Information

This unit replaces and is equivalent to NWPTRT032 Assess and improve sedimentation processes.

## 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 NWPTRT064 Assess and improve sedimentation processes

## Modification History

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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 includes:

- assessing fault reports and investigating the current operational status of sedimentation and clarification plant components
- conducting investigations and reporting on operational or control system problems including sedimentation and clarification inspection, sampling and testing
- identifying and responding to risks and hazards
- identifying data deficiencies and organising additional data collection through appropriate sampling and testing
- 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 current and potential chemical addition practices
- operating a sedimentation process
- performing calculations to provide data for the analysis and development of options and solutions, including at least one of:
  - detention time
  - surface loading rate
  - upflow velocity
  - weir loading rate
- planning trials to test the performance of the determined sedimentation and clarification optimisation options and compiling recommendation reports
- reviewing existing sedimentation and clarification process performance with reference to historical data, differences in incoming water quality and plant 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:

- investigation procedures
- polymers and weighting agent characteristics and applications
- principles of sedimentation and clarification processes and asset operation
- range of appropriate measuring and testing procedures
- re-establishing and maintaining sludge blankets
- relevant legislation, industry standards and workplace policies and procedures relating to the assessment and improvement of sedimentation processes
- risk and hazard management principles relating to sedimentation and clarification systems
- system layout
- types of sedimentation and clarification processes
- 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.

## Links

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