



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **NWP352B Monitor, operate and control dissolved air flotation processes**

**Revision Number: 1**

## **NWP352B Monitor, operate and control dissolved air flotation processes**

### **Modification History**

Not applicable.

### **Unit Descriptor**

**Unit descriptor** This unit of competency describes the outcomes required to monitor, operate and control dissolved air flotation (DAF) plant 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**

**Application of the unit** This unit supports the attainment of skills and knowledge required for operational staff with a specific responsibility for ensuring that dissolved air flotation (DAF) processes in water treatment plants conform to organisational standards and comply with statutory requirements.

### **Licensing/Regulatory Information**

Not applicable.

### **Pre-Requisites**

Not applicable.

### **Employability Skills Information**

**Employability Skills** This unit of competency 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 required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<b>1 Monitor flotation plant performance.</b>	<p>1.1 Monitor test results and <b><i>processes</i></b> to meet <b><i>organisational and statutory requirements</i></b>.</p> <p>1.2 Identify and report process faults and the operational condition of plant according to organisational procedures.</p> <p>1.3 Correctly select, fit and use required safety equipment, including personal protective equipment.</p>
<b>2 Operate and control processes.</b>	<p>2.1 Carry out <b><i>routine plant inspections</i></b> according to organisational and plant requirements.</p> <p>2.2 Collect process samples and conduct standard <b><i>tests</i></b>.</p> <p>2.3 Carry out basic <b><i>system adjustments</i></b> and <b><i>process calculations</i></b> to enhance system performance according to organisational procedures.</p> <p>2.4 Collect and report process data according to organisational and plant requirements.</p>
<b>3 Compile process records.</b>	<p>3.1 Compile <b><i>reports</i></b> from plant and system data to meet organisational requirements.</p> <p>3.2 Report observations outside defined parameters for further action.</p>

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

#### Required skills:

- identify and correct operational and control system problems
- take samples and perform tests
- produce logs and reports
- perform process calculations
- prepare and apply chemical dosing
- interpret plans, charts and instructions
- interpret policies, procedures and standards
- give and receive instructions
- operate control and communication systems
- use safety and personal protective equipment
- communicate with employees and customers
- perform process calculations.

#### Required knowledge:

- process layout
- features and components of dissolved air flotation systems
- theory of process operations
- risk factors and potential hazards related to dissolved air flotation systems
- risk control requirements including safety equipment and material safety data sheets
- lockout procedures for mechanical and electrical installations and hydraulic isolation
- equipment operation, capacity and limitations
- operation of pumping and valving systems
- control and communications systems
- policies, procedures and relevant legislation
- safety equipment and procedures
- relevant utilities and service bodies
- hazardous materials handling
- environment, landscape and ground structure of work area
- procedures for storing and handling dangerous goods and chemicals
- interpretation and use of material safety data sheets.

# Evidence Guide

## 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 dissolved air flotation processes, including:

- monitoring test results and processes
- identifying and reporting faults
- conducting routine plant inspections
- taking samples and performing basic tests
- making basic process adjustments according to instructions
- collecting data and completing required documentation.

### **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 only taken at the point 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

## EVIDENCE GUIDE

- 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

### 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.

***Processes*** may include:

- dissolved air flotation/clarification
- dissolved air flotation/filtration
- dissolved air flotation/sludge thickening.

***Organisational and statutory requirements*** may include:

- by-laws and organisational policies
- standard operating procedures
- Australian and New Zealand Environment and Conservation Council (ANZECC) guidelines
- environment protection
- occupational health and safety
- chemicals
- dangerous goods
- lifts and cranes
- World Health Organisation standards
- Australian Drinking Water Guidelines
- National Water Quality Management Strategies (NWQMS)
- Environment Protection Authority regulations
- licensing agreements
- electrical standards.

***Routine plant inspections*** may require:

- 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
- use of equipment, including:
  - electronic monitoring and metering systems
  - chart recording systems
  - basic hand tools
  - sampling and laboratory testing equipment
  - computerised equipment
  - on- and off-road vehicles
  - communication equipment
  - personal protective equipment.

## RANGE STATEMENT

*Tests* may include:

- settling tests
- pH
- flotation tests
- colour
- turbidity
- suspended solids
- total solids.

*System adjustments* may include:

- saturator pressure
- water level and flow rate.

*Process calculations* may include:

- air to solids ratio or air quantity
- recycle ratio
- hydraulic loading rate.

*Reports* may include:

- plant performance data
- chemical usage.

## Unit Sector(s)

Not applicable.

## Competency field

**Competency field**      Treatment