



Australian Government

Department of Education, Employment and Workplace Relations

NWP367A Monitor, operate and control activated carbon adsorption processes

Revision Number: 2

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Modification History

NWP367A Release 2: Layout adjusted. No changes to content.

NWP367A Release 1: Primary release.

Unit Descriptor

This unit of competency describes the monitoring, operational coordination and control, measurement and reporting of activated carbon adsorption system performance and process quality control.

Application of the Unit

This unit supports the attainment of skills and knowledge required for operational staff with a specific responsibility for ensuring that activated carbon adsorption processes conform to organisational standards and comply with statutory requirements

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 <i>bold italicised</i> text is used, further information is detailed in the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Monitor activated carbon adsorption plant performance.	1.1 Monitor processes to maintain the parameters of operation. 1.2 Identify and report process faults and the operational condition of plant according to organisational and statutory requirements. 1.3 Adjust integrated processes to optimise system performance according to organisational requirements.
2 Operate and control activated carbon adsorption processes.	2.1 Carry out routine plant inspections according to organisational and plant requirements. 2.2 Conduct and analyse process tests and determine performance against plant operational requirements. 2.3 Collect, interpret and record process data according to organisational and plant requirements. 2.4 Conduct calculations to determine process performance. 2.5 Make process adjustments to optimise system performance according to organisational requirements.
3 Compile activated carbon adsorption process records.	3.1 Compile reports from plant and system data to meet organisational requirements. 3.2 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 correct operational problems
- produce reports and logs
- use safety and personal protective equipment
- interpret plans, charts and instructions
- perform work related calculations
- interpret policies, procedures and standards
- communicate with employees and/or customers
- work effectively as part of a team
- use communication equipment
- give and receive instructions
- determine process requirements
- operate control equipment
- collect samples and conduct tests

Required knowledge:

- process layout
- activated carbon adsorption principles
- powdered activated carbon
- granular activated carbon
- biological activated carbon
- lock out procedures for mechanical and electrical installations
- policies, procedures and legislation
- relevant utilities and service bodies
- communication systems
- hazardous materials handling
- material safety data sheets
- risk factors and potential hazards associated with activated carbon processes
- equipment operation, capacity and limitations
- mechanical and electrical control systems

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 activated carbon adsorption processes including:

- analysing tests
- identifying and reporting process and operational faults
- monitoring activated carbon systems
- making appropriate system adjustments
- collecting and reporting process data

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 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, any cultural issues that may affect responses to the questions, and reflecting 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.

Processes may include:

- pre-treatment, for example:
 - screening
 - pH correction
 - ozone
- powdered activated carbon (PAC)
- granular activated carbon (GAC)
- biological activated carbon (BAC)

Organisational and statutory requirements may include:

- by-laws and organisational policies
- standard operating procedures
- environment protection
- occupational health and safety
- chemicals
- dangerous goods
- electrical
- lifts and cranes
- World Health Organisation standards
- Australian Drinking Water Guidelines
- licensing agreements

Routine plant inspections may include:

- 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

Process tests may include:

- jar testing investigations for PAC
- odour analysis
- UV₂₅₄ absorbance
- microbiological analysis
- adsorption capacity

Process adjustments may include:

- hydraulic loadings
- backwash rates
- powdered activated carbon dosages and addition points

Unit Sector(s)

Not applicable.

Competency field

Treatment.