



**Australian Government**

# **PPMWAS210 Operate water systems**

**Release: 2**

## PPMWAS210 Operate water systems

### Modification History

| Release   | Comments                                                                                  |
|-----------|-------------------------------------------------------------------------------------------|
| Release 2 | This version released with PPM Pulp and Paper Manufacturing Training Package Version 2.0. |
| Release 1 | This version released with PPM Pulp and Paper Manufacturing Training Package Version 1.0. |

### Application

This unit of competency describes the skills and knowledge required to check, monitor, operate and shut down water systems, in a pulp or paper manufacturing facility.

The unit applies to production operators and technicians who start up, monitor and operate water systems. This typically involves working in a facility with complex integrated equipment and continuous operations.

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

### Pre-requisite Unit

Nil

### Unit Sector

Water service (WAS)

### Elements and Performance Criteria

| Elements                                                       | Performance Criteria                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i>               | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                                      |
| 1. Conduct local inspections and pre-operational safety checks | 1.1 Check plant and equipment according to productivity requirements, environmental sustainability procedures, workplace health and safety and standard operating procedures (SOP), risks and hazards identification and housekeeping requirements<br>1.2 Remove isolations |

| <b>Elements</b>                                  | <b>Performance Criteria</b>                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i> | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                                                                                                                                     |
|                                                  | 1.3 Confirm availability of materials and supplies for water system<br>1.4 Determine plant status and requirements<br>1.5 Confirm sequencing for plant startup<br>1.6 Select, fit, use and maintain personal protective equipment according to job requirements and task to be undertaken                                                                                  |
| 2. Start up water systems                        | 2.1 Start up water system according to SOPs<br>2.2 Observe the water system for correct start up operational response<br>2.3 Detect startup variation conditions and take corrective action                                                                                                                                                                                |
| 3. Monitor and control water systems             | 3.1 Monitor the operation of the water system through routine checks<br>3.2 Take water samples and test to maintain quality according to organisational procedures<br>3.3 Identify variations from operational parameters<br>3.4 Restore water system to standard operational parameters<br>3.5 Conduct operator level maintenance, according to organisational procedures |
| 4. Conduct a water system shutdown               | 4.1 Confirm shutdown plan and communicate to relevant personnel<br>4.2 Implement shutdown procedures<br>4.3 Leave plant in a safe condition for isolation, as required                                                                                                                                                                                                     |
| 5. Respond to an unplanned shutdown              | 5.1 Identify the cause of shutdown and action according to organisational procedures<br>5.2 Complete sequence for shutdown of systems, in the plant<br>5.3 Communicate action taken to relevant personnel<br>5.4 Leave plant in a safe condition for isolation                                                                                                             |
| 6. Record and report water systems information   | 6.1 Record water systems information<br>6.2 Record problems and related action and communicate to relevant personnel                                                                                                                                                                                                                                                       |

## Foundation Skills

*This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.*

| Skill                      | Description                                                                                                                                                                                                                  |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reading                    | <ul style="list-style-type: none"> <li>Read and interpret documentation, procedures and reports</li> </ul>                                                                                                                   |
| Writing                    | <ul style="list-style-type: none"> <li>Record log sheet entries, incident reports and system faults</li> <li></li> </ul>                                                                                                     |
| Numeracy                   | <ul style="list-style-type: none"> <li>Interpret instruments, gauges and data recording equipment</li> </ul>                                                                                                                 |
| Navigate the world of work | <ul style="list-style-type: none"> <li>Use electronic and other control systems to control equipment and processes</li> <li>Access, navigate and enter computer based information for operation of water systems</li> </ul>  |
| Interact with others       | <ul style="list-style-type: none"> <li>Select and use appropriate spoken communication strategies with work teams and other personnel on site, when operating water systems</li> </ul>                                       |
| Get the work done          | <ul style="list-style-type: none"> <li>Maintain situational awareness in the work area</li> <li>Analyse and use sensory information to adjust process to maintain and coordinate safety, quality and productivity</li> </ul> |

## Unit Mapping Information

| Code and title current version               | Code and title previous version              | Comments                                                        | Equivalence status |
|----------------------------------------------|----------------------------------------------|-----------------------------------------------------------------|--------------------|
| PPMWAS210<br>Operate water systems Release 2 | PPMWAS210<br>Operate water systems Release 1 | Performance criteria added, minor changes to knowledge evidence | Equivalent unit    |

## Links

Companion Volumes, including Implementation Guides, are available at VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=12998f8d-d0ac-40bc-a69e-72a600d4fd93>

# Assessment Requirements for PPMWAS210 Operate water systems

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## Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit. There must be evidence that the individual has:

- inspected, started up and monitored water systems, at least twice in line with required enterprise intervals, and conducted required testing and sampling to maintain optimum production capacity
- followed safe working practices when operating water systems
- responded to planned and unplanned shutdowns with water systems
- used electronic and other control systems to control equipment during operations
- communicated effectively, through written and verbal means, with others, in the work area when operating water systems.

## Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- organisational procedures relevant to workplace health and safety with particular emphasis on:
  - use of personal protective equipment (PPE)
  - equipment lock out and isolation procedures
  - handling chemicals and hazardous substances, including spill and disposal guidelines
  - plant clearance requirements
  - emergency procedures and responses
  - job safety analysis documentation and processes
  - plant permit systems and processes
  - high risk load shifting licensing requirements where relevant
  - major hazard facility requirements where relevant

- workplace documentation and procedures relevant to water systems, in the pulp and paper industry and covering:
  - standard operating procedures (SOP) and housekeeping procedures for plant manufacturing, including confined space requirements
  - production instructions including maintenance logs, job sheets and operating logs
  - quality procedures and environmental sustainability requirements and practices
  - process for plant shutdowns and unplanned shutdowns
  - safety data sheets
- impact of different types of water sources including raw, mains or recycled water on water systems
- appropriateness of sampling and testing checks for:
  - sludge consistency
  - pH
  - conductivity
  - flocculation
  - colour
  - suspended solids
  - caustic strength
  - alkalinity
  - impurities
  - brine
  - bacteria
  - colour
  - acid strength
- operating parameters, variation and associated adjustments for water system, plant, processes, layout and associated services, sufficient to carry out start up and shutdown activities
- required responses to all unplanned shutdowns, including:
  - power outage
  - mechanical breakdown
  - blockages
  - jamming
  - air supply
  - control system failure, to ensure safety quality and productivity
- purpose, standards and procedures as per site agreements for sampling and testing process for plant and system operations, and process monitoring
- implications of the use of water types including:
  - fresh water
  - treated water
  - de-mineralised water
  - softened water

- filtrate-clarified water
- potable water
- dilution water (filtrate) ex-vacuum system
- waste water (effluent)
- white water (ex-machine)
- cloudy water, on water systems
- how to identify and respond to hazards and risks of water systems including:
  - confined space
  - biological hazards and environmental hazards
  - heat, height and slippery surfaces
  - pressures, fumes and electrical equipment
  - compressed air, nip points and flooding
- key features of maintenance systems including:
  - operator level maintenance as per site agreements
  - operator maintenance schedules
  - maintenance suppliers
  - pro-active maintenance strategies
- use of equipment and electronic and other control systems, operation and application to make appropriate adjustments that control the water system within level of responsibility
- productivity requirements including:
  - energy efficiency
  - waste minimisation
  - evaporation minimisation
  - landfill and waste water reduction
- consideration of resource utilisation including:
  - fibre efficiency
  - minimising delays
  - chemical recovery maximisation
  - line speed
  - handovers
- water systems including:
  - de-alkalinisation plant
  - de-mineralisation plant
  - water softening plant
  - chemical treatment plant
  - reverse osmosis plant
  - clarifier plant chillers
  - water storage systems
  - filtration systems
  - cooling towers

- condensers
- potable water plant
- materials and supplies including chemicals and filtering mediums.

## Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
  - a workplace or a productive environment that accurately reflects performance in a workplace
- resources, equipment and materials:
  - access to the full range of equipment required to operate water systems in a pulp or paper manufacturing facility
  - test and diagnostic equipment
  - PPE required for operating water systems
- specifications:
  - template operating log and documents for recording operation of the water system and maintenance requirements
  - organisational workplace health and safety and SOPs.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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