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.

PPMWAS210	Operate water systems
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.
Prerequisite Unit	Nil
Unit Sector	Pulp and Paper Manufacturing (PPM)

Elements	Performance Criteria
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
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 1.2 Remove isolations 1.3 Confirm availability of materials and supplies for water system 1.4 Determine plant status and requirements 1.5 Confirm sequencing for plant startup 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 2.2 Observe the water system for correct start up operational response 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 3.2 Take water samples and test to maintain quality according to organisational procedures 3.3 Identify variations from operational parameters 3.4 Restore water system to standard operational parameters 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 4.2 Implement shutdown procedures 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 5.2 Complete sequence for shutdown of systems, in the plant 5.3 Communicate action taken to relevant personnel 5.4 Leave plant in a safe condition for isolation
6. Record and report water systems information	6.1 Record water systems information 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	• Read and interpret documentation, procedures and reports
Writing	• Record log sheet entries, incident reports and system faults •
Numeracy	• Interpret instruments, gauges and data recording equipment
Navigate the world of work	• Use electronic and other control systems to control equipment and processes • Access, navigate and enter computer based information for operation of water systems
Interact with others	• Select and use appropriate spoken communication strategies with work teams and other personnel on site, when operating water systems
Get the work done	• Maintain situational awareness in the work area • Analyse and use sensory information to adjust process to maintain and co-ordinate safety, quality and productivity

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
PPMWAS210 Operate water systems Release 2	PPMWAS210 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.education.gov.au/Pages/TrainingDocs.aspx?q=12998f8d-d0ac-40bc-a69e-72a600d4fd93

TITLE	Assessment requirements for PPMWAS210 Operate water systems

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 and 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 and 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) and 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 and 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

Knowledge Evidence

- 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, and 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 and 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.

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