Australian Government

Department of Education, Employment and Workplace Relations

FPPWAS210A Operate water systems

Release: 1

FPPWAS210A Operate water systems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit describes the outcomes required to operate water systems in the pulp and paper industry

General legislation, regulatory, licensing and certification requirements applicable to this unit are detailed in the range statement

Specific high risk and small boat licensing requirements for this unit may be applicable and are to be met separately and prior to the achievement of this unit

Application of the Unit

Application of the unit

This unit applies to operators who operate water systems in the pulp and paper industry. This work typically involves complex integrated equipment and continuous operations

This unit generally applies to those who:

- conduct local inspections and pre-operational safety checks
- start up, monitor, control and shut down water systems
- respond to an unplanned shutdown, and
- record and report water systems information

to meet safety, quality and productivity requirements

It does not include troubleshooting and rectifying problems associated with water system operations

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability skills 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 performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Conduct local inspections and pre-operational safety checks	1.1. Local inspections and pre-operational safety checks are conducted within Occupational Health and Safety (OHS) regulations, environmental and safe working requirements/practices, Standard Operating Procedures (SOP), and housekeeping requirements
	1.2. Isolations are removed
	1.3. Availability of supplies for water system is confirmed
	1.4. Plant status and requirements are determined
	1.5. Sequencing for plant startup is confirmed
2. Start up water systems	2.1. Water systems are started up within OHS, housekeeping, SOP, environmental and safe working requirements and practices
	2.2. Water system is started up
	2.3. Water system is observed for correct startup operational response
	2.4. Startup variation conditions are detected and corrective action taken
3. Monitor and control water systems	3.1. Water systems are monitored and controlled within OHS, housekeeping, SOP, environmental and safe working requirements and practices
	3.2. Water system operation is monitored
	3.3. Water samples are taken and tested to maintain quality as required
	3.4. Routine checks of water systems are conducted as required
	3.5. Variations from operational parameters are identified
	3.6. Action is taken to restore water system to standard operational parameters
	3.7. Operator level maintenance is conducted as required
4. Conduct a water system shutdown	4.1. Water system shutdown is conducted within OHS, housekeeping, SOP, environmental and safe working requirements and practices
	4.2. Shutdown plan is confirmed and communicated to relevant personnel
	4.3. Shutdown procedures are implemented
	4.4. Plant is left in a safe condition for isolation as required
5. Respond to an	5.1. Unplanned shutdown is responded to within OHS,

ELEMENT	PERFORMANCE CRITERIA
unplanned shutdown	housekeeping, SOP, environmental and safe working requirements and practices 5.2. Cause of shutdown is identified and actioned as required 5.3. Sequence for systems shutdown of plant is completed 5.4. Action taken is communicated to relevant personnel 5.5. Plant is left in a safe condition for isolation as required
6. Record and report water systems information	6.1. Water systems information is recorded and reported within OHS, housekeeping, SOP, environmental and safe working requirements and practices 6.2. Water systems information is recorded as required 6.3. Problems and related action are recorded and communicated to relevant personnel

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the skills and knowledge required for this unit.

Required skills

- Uses required forms of communication in operating water systems
- Reads and interprets required documentation, procedures and reports
- Accesses, navigates and enters computer-based information
- Interprets instruments, gauges and data recording equipment
- Identifies and actions problems within level of responsibility
- Takes samples, conducts tests, interprets and records results, if required
- Identifies and monitors process control points
- Plans and organises startup and shutdown of water systems
- Identifies and responds appropriately to shutdown causes
- Responds to problems associated with plant shutdown and unplanned shutdown to ensure safety quality and productivity
- Maintains situational awareness in the work area
- Operates a small boat as required
- Operates high risk equipment as required
- Analyses and uses sensory information to adjust process maintain and co-ordinate safety, quality and productivity

REQUIRED SKILLS AND KNOWLEDGE

- Uses electronic control and other systems to control equipment and processes as required

Required knowledge

- Procedures, regulations and legislative requirements relevant to water system operations including OHS, environmental including relevant sustainability requirements/practices, SOP, isolation procedures, safe working requirements, risks and hazard identification and housekeeping
- Relevant forms of communication
- Basic problem-solving techniques consistent with level of responsibility
- Sampling and testing process for plant and system operations, and process monitoring - purpose, standards and procedures as per site agreements
- Quality requirements
- Working knowledge of water system, plant, processes, layout and associated services sufficient to carry out startup and shutdown activities within level of responsibility
- Types, causes and effects of water system shutdowns
- Required responses to all unplanned shutdowns (e.g. power outage, mechanical breakdown, blockages, jamming, air supply, control system failure) to ensure safety quality and productivity
- Process and procedures for plant shutdowns and unplanned shutdowns
- Plant and machinery functions and operations
- Emergency procedures and responses
- Effects of shutdowns on the rest of the systems
- Sensory information that indicates a deviation from standard operating parameters
- Application of small boat operation requirements
- Application of high risk equipment, as required
- Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control the water system, within level of responsibility

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, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence should be relevant to the work. It should satisfy the requirements of the elements and performance criteria and include consideration of:

- the required knowledge and skills tailored to the needs of the specific workplace
- applicable OHS regulations, environmental and safe working requirements/practices, SOP and housekeeping requirements
- applicable aspects of the range statement
- practical workplace demonstration of skills in the operation of water systems

Context of and specific resources for assessment

A workplace assessment must be used to assess:

- the application of required knowledge on the job
- the application of skills on the job, over time and under a range of typical conditions that may be experienced in operating water systems

Access to the full range of equipment involved in integrated continuous operation of water systems in a pulp or paper mill is required

Method of assessment

A combination of assessment methods should be used. The following examples are appropriate for this unit:

- observation of applied skills and knowledge on the job
- workplace demonstrations via a mock-up or simulation that replicate part/s of the job
- answers to written or verbal questions about specific skills and knowledge
- third-party reports from relevant and skilled personnel
- written evidence e.g. log sheet entries, checklist entries, test results

Assessment processes and techniques must be culturally appropriate and in keeping with the language and literacy capacity of the learner and the work being

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performed. This includes conducting an assessment in a manner that allows thoughts to be conveyed verbally so that the learner can both understand and be understood by the assessor (e.g. use plain English and terminology used on the job)

A holistic assessment with other units relevant to the pulp and paper industry, mill and job role is recommended

Additional information on approaches to assessment for the pulp and paper industry is provided in the Assessment Guidelines for this Training Package

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. 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) may also be included.

Productivity requirements may include:

- energy efficiency
- waste minimisation
- evaporation minimisation, including landfill and waste water reduction
- environmentally safe waste disposal
- consideration of resource utilisation, including fibre efficiency
- minimising delays
- chemical recovery maximisation
- meeting key performance indicators
- line speed
- handovers
- quality checks
- meeting output targets i.e. net tonnes per employee per annum
- machine/process time availability i.e. time the machine or process is making product
- machine/process production rate

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Water system may include:	• 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
Water sources may include:	• raw water • mains water • recycled water
Water types may include:	• 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
Materials and supplies may include:	• chemicals • filtering mediums
Equipment may include:	• flow control and metering devices • pumping systems • electronic and digital monitoring and metering • valving systems • recording systems • pipes • fittings • chemical testing and analysis equipment • chemical dosing equipment • tanks and chests • cranes and hoists • communication equipment

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	• aeration ponds • chemical handling equipment • hand and power tools • pest control equipment • load shifting equipment • small boat • computer systems • electronic screens and alarms • process control systems • fully automated, semi-automated, manually operated plant and equipment appropriate to water processes and systems • analogue and digital instrumentation
Electronic control systems may include:	• Digital Control System (DCS) • touch screens • robotics
Hazards and risks in water systems may include:	• confined space • hazardous chemicals and materials • biological hazards • environmental hazards • heat • height • slippery surfaces • pressures • fumes • electrical • compressed air • nip points • flooding
Legislation, regulatory, licensing and certification requirements may include:	• OHS and environmental requirements (local, state and commonwealth) • activity or task specific high risk and small boat licensing requirements • water and chemical legislation and regulations • safety instructions
Documentation, procedures and reports may include:	• SOP • site policy and procedures • environmental sustainability requirements/practices • plant manufacturing operating manuals • confined space requirements

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	• vendor documentation • reference manual • quality procedures • oil or chemical spills and disposal guidelines • plant isolation documentation • housekeeping • safe work documentation e.g. plant clearance, job safety analysis, permit systems • maintenance logs • job sheets • operating log • production instructions • Materials Safety Data Sheets (MSDS) • process and instrument diagrams
Maintenance may include:	• operator level maintenance as per site agreements • operator maintenance schedules • maintenance systems • maintenance suppliers • pro-active maintenance strategies e.g. Total Productive Maintenance (TPM), Reliability Centred Maintenance (RCM)
Sampling and testing may include checks of:	• sludge consistency • pH • conductivity • flocculation • colour • suspended solids • caustic strength • alkalinity • impurities • brine • bacteria • colour • acid strength
Communications may include	interaction with: • team members • production/service co-ordinators • internal/external customers and suppliers • maintenance services

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	• operational management • statutory authorities
Situational awareness may include	awareness of: • traffic • pedestrians • location of equipment • product • hazards • obstructions • unexpected movement
Sensory information may include:	• visual • sound • feel • touch • smell • vibration • temperature
Forms of communications may include:	• written e.g. log books, emails, incident and other reports, run sheets, data entry • reading and interpreting documentation e.g. standard operating procedures, manuals, checklists, drawings • verbal e.g. radio skills, telephone, face to face, handover • non-verbal e.g. hand signals, alarms, observations • signage e.g. safety, access

Unit Sector(s)

Not Applicable