



Australian Government

Department of Education, Employment and Workplace Relations

FPPSTM210A Monitor and control boiler operation

Release: 1

FPPSTM210A Monitor and control boiler operation

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit describes the outcomes required to monitor and control boiler operation 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 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 monitor and control boiler operation in the pulp and paper industry. This work typically involves complex integrated equipment and continuous operations

This unit generally applies to those who:

- confirm operational status
- monitor and control boiler and ancillary plant operation
- handover boiler operations, and
- record and document boiler and plant performance

to meet safety, quality and productivity requirements

It does not include starting up and shutting down of steam boiler operations or troubleshooting and rectifying boiler plant systems

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. Confirm operational status	1.1. Operational status is confirmed within Occupational Health and Safety (OHS) regulations, environmental and safe working requirements/practices, Standard Operating Procedures (SOP), and housekeeping requirements 1.2. Production requirements are checked at start of shift to plan the daily activities as required 1.3. Continuing process supplies are maintained 1.4. Combustion processes are confirmed to be within operational specifications 1.5. Boiler performance is recorded in the operational log 1.6. Operational status is communicated to relevant personnel
2. Monitor and control boiler and ancillary plant operation	2.1. Boiler and ancillary plant operation is monitored and controlled within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements 2.2. Operational status is confirmed by inspection, observations and other information 2.3. Water quality tests are conducted and chemical addition adjusted as required 2.4. Steam pressures are monitored and maintained as required 2.5. Fuel efficiency calculations and recordings are made 2.6. Boiler control adjustments are made to maintain operation within specification 2.7. Pre-treatment systems for water to be monitored, tested and maintained are made up 2.8. Steam distribution systems are monitored and maintained to client requirements 2.9. Operator level maintenance is carried out as required
3. Handover boiler operations	3.1. Handover of boiler operations is completed within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements

ELEMENT	PERFORMANCE CRITERIA
4. Record and document boiler and plant performance	<p>3.2. Workplace records are maintained in accordance with statutory requirements and workplace procedures</p> <p>3.3. Handover is carried out according to workplace procedure</p> <p>3.4. Boiler operators are aware of boiler status and related equipment at completion of handover</p> <p>4.1. Boiler and plant performance is recorded and documented within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements</p> <p>4.2. Operating log is maintained</p> <p>4.3. Maintenance requirements are identified and documented as required</p>

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 monitoring and controlling boiler operation
- Reads and interprets required documentation, procedures and reports within level of responsibility
- Accesses, navigates and enters computer-based information
- Interprets instruments, gauges and data recording equipment
- Interprets specifications and customer orders
- Identifies and actions problems within level of responsibility
- Identifies and monitors process control points
- Maintains situational awareness in the work area
- Perform tests and interprets and record results as required
- Uses measuring equipment as required
- Conducts pre-operational checks
- Inspects and maintains boiler and ancillary equipment and services to operating standards
- Operates high risk equipment as required

REQUIRED SKILLS AND KNOWLEDGE

- Analyses and uses sensory information to adjust process to maintain safety, quality and productivity
- Uses electronic and other control systems to control equipment and processes as required

Required knowledge

- Procedures, regulations and legislative requirements relevant to monitoring and controlling boiler operation systems 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
- Working knowledge of steam generation plant, processes, layout and associated services including operating parameters, variation and associated adjustments within level of responsibility
- Sampling and testing process for plant and system operations, and process steam supply monitoring - purpose, standards and procedures as per site agreements
- Boiler water treatment system and reasons for treatment
- Operation of plant and systems
- Application of high risk equipment as required
- Sensory information that indicates a deviation from standard operating parameters
- Sufficient knowledge of electronic and other control systems, operation and application to make appropriate adjustments that control boiler operation, 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 monitoring and controlling boiler operation

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 steam generation operations

Access to the full range of equipment involved in integrated continuous manufacturing of steam generation operations 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

EVIDENCE GUIDE

and literacy capacity of the learner and the work being 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

RANGE STATEMENT

- Boiler types may include:
- machine/process production rate
 - fire tube
 - water tube
- and may be operated in conjunction with other steam driven plant and operations including:
- paper making machines
 - turbines
 - digesters
 - evaporators
 - heating plant
- Pre-operational checks may include:
- low water level alarm
 - high water level alarm
 - low water level alarm lockout
 - hydrostatic test
 - burner management system
 - safety valve test
- Materials and supplies may include:
- chemicals
 - coal
 - oil
 - gas
 - additives
 - air
 - water
 - wood waste
 - steam
 - recovery process products
 - power
- Equipment may include:
- boiler and auxiliary plant
 - boiler heating systems
 - steam distribution system
 - fuel and fuel delivery system plant
 - dust removal and combustion waste
 - fuel management system
 - extraction systems
 - water distribution systems
 - compressed air systems
 - steam temperature control plant
 - chemical dosing system
 - water treatment system

RANGE STATEMENT

- flame detection equipment
 - hand and power tools
 - computer systems
 - electronic screens and alarms
 - process control systems
 - analogue and digital instrumentation
 - fully automated, semi-automated, manually operated plant and equipment appropriate to steam generation operations
- Electronic control systems may include:
- Digital Control System (DCS)
 - touch screens
 - robotics
- Legislation, regulatory, licensing and certification requirements may include:
- OHS and environmental requirements (local, state and commonwealth)
 - as applicable, activity or task specific high risk licensing requirements
 - appropriate boiler/pressure vessel operator certification
 - confined space standards and regulations
- Documentation, procedures and reports may include:
- SOP
 - quality procedures
 - environmental sustainability requirements/practices
 - plant manufacturing operating manuals
 - oil or chemical spills and disposal guidelines
 - plant isolation documentation
 - safe work documentation e.g. plant clearance, job safety analysis, permit systems
 - enterprise policies and procedures
 - job sheets
 - manufacturer's specifications
 - maintenance documentation
 - statutory requirements
 - Materials Safety Data Sheets (MSDS)
 - operator's log
 - process and instrument diagrams
- Maintenance may include:
- operator level as per site agreements
 - operator schedules
 - systems
 - suppliers
 - proactive strategies e.g. Total Productive

RANGE STATEMENT

	Maintenance (TPM), Reliability Centred Maintenance (RCM)
Actions may include:	<ul style="list-style-type: none">• process adjustments• reporting to authorised person• rectifying problem within level of responsibility
Communications may include	interaction with: <ul style="list-style-type: none">• internal/external customers and suppliers• team members• production/service coordinators• maintenance services• operational management• statutory authorities
Situational awareness may include	awareness of: <ul style="list-style-type: none">• traffic• pedestrians• location of equipment• product• hazards• obstruction• unexpected movement
Forms of communication may include:	<ul style="list-style-type: none">• written e.g. log books, emails, incident and other reports, run sheets, data entry•• reading and interpreting documentation e.g. SOP, 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
Sensory information may include:	<ul style="list-style-type: none">• visual• sound• feel• touch• smell• vibration• temperature

Unit Sector(s)

Not Applicable