



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **FPPSTM320A Manage steam boiler startup**

**Release: 1**

## **FPPSTM320A Manage steam boiler startup**

### **Modification History**

Not Applicable

### **Unit Descriptor**

<b>Unit descriptor</b>	<p>This unit describes the outcomes required to manage steam boiler startup in the pulp and paper industry</p> <p>General legislation, regulatory, licensing and certification requirements applicable to this unit are detailed in the range statement</p> <p>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</p>
------------------------	---

### **Application of the Unit**

<b>Application of the unit</b>	<p>This unit applies to operators who manage steam boiler startup in the pulp and paper industry. This work typically involves complex integrated equipment and continuous operations</p> <p>This unit generally applies to those who:</p> <ul style="list-style-type: none"><li>• conduct pre-operational safety checks and</li><li>• conduct startup procedures</li></ul> <p>to meet safety, quality and productivity requirements</p> <p>It does not include monitoring and controlling boiler operation, shutting down and banking steam boiler or troubleshooting and rectifying boiler plant systems</p>
--------------------------------	--

### **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 pre-operational safety checks	<p>1.1. 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</p> <p>1.2. Plant status is confirmed by inspection, observations and other information</p> <p>1.3. Potential work area hazards are identified, reported and prevention or control measures implemented</p> <p>1.4. Work and output requirements are established</p> <p>1.5. Pre-operational and safety checks are conducted</p> <p>1.6. Isolations are removed</p> <p>1.7. Availability of process supplies are confirmed</p>
2. Conduct startup procedures	<p>2.1. Startup procedures are conducted within OHS regulations, environmental and safe working requirements/practices, SOP, and housekeeping requirements</p> <p>2.2. Pre-light conditions are established</p> <p>2.3. Boiler condition during startup is monitored to detect abnormal conditions</p> <p>2.4. Boiler is started and brought on-line</p> <p>2.5. System and plant is observed for correct operational response</p> <p>2.6. Deviations from required operating conditions are detected and corrective action undertaken to rectify</p> <p>2.7. Responses to corrective actions are documented as required</p> <p>2.8. Startup information is recorded and reported 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 managing a steam boiler startup
- Reads and interprets required documentation, procedures and reports
- Interprets instruments, gauges and data recording equipment
- Prepares written information and enters data to support groups and teams
- Interprets specifications and customer orders
- Accesses, navigates and enters computer-based information
- Identifies and actions problems within level of responsibility
- Identifies and monitors process control points
- Maintains situational awareness in the work area
- Implements isolation and access procedures
- Maintains a clean and hazard free work area
- Sets up and starts boiler within an appropriate time
- Uses measuring equipment as required
- Operates high risk equipment as required
- Analyses and uses sensory information to adjust process to maintain and co-ordinate 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 steam generation 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
- Working knowledge of steam generation plant, processes, layout and associated services sufficient to carry out startup activities within level of responsibility
- Boiler water treatment system and reasons for treatment
- Pre-operational checks and requirements
- 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 steam generation systems, 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 managing a steam boiler startup

#### 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)
  - 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 maintenance as per site agreements
  - operator maintenance schedules
  - maintenance systems
  - maintenance suppliers

## RANGE STATEMENT

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

## **Unit Sector(s)**

Not Applicable