



Australian Government

Department of Education, Employment and Workplace Relations

FPICOT3231B Operate steam boiler

Release: 1

FPICOT3231B Operate steam boiler

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit describes the outcomes required to start up, operate, shut down and store a steam-generating boiler, including tasks associated with handover, maintenance, inspection and safety

General workplace legislative and regulatory requirements apply to this unit; however there are no specific licensing or certification requirements at the time of publication

This unit replaces FPICOT3231A Operate steam boiler

Application of the Unit

Application of the unit

The unit involves operating a steam boiler in a timber treatment plant setting

The skills and knowledge required for competent workplace performance are to be used within the scope of the person's job and authority

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. Prepare for operation	1.1. Applicable occupational health and safety (OHS), environmental, legislative and organisational requirements relevant to operating a steam boiler are identified and followed 1.2. Work order is reviewed and clarified with appropriate personnel 1.3. Quantity of steam to be generated is assessed and set for the allocated process 1.4. Equipment is selected appropriate to work requirements and checked for operational effectiveness in line with manufacturer recommendations 1.5. Steam generation is planned in line with site procedures and environmental requirements 1.6. Communication with others is established and maintained in line with OHS requirements
2. Operate and monitor boiler	2.1. Pre-operational safety and pre-startup checks are carried out on equipment in line with statutory requirements, manufacturer recommendations and plant operating procedures 2.2. Boiler is started and brought safely on line and recent boiler performance is clearly communicated to other personnel 2.3. Continued operation of boiler is assessed against pre-operational checks, maintenance requirements and operating conditions 2.4. Boiler operation and status are monitored and diagnosed and adjustments conducted to maintain safe and efficient operation 2.5. Boiler house chemicals are stored, recorded and handled in line with statutory and environmental requirements 2.6. Emergency shutdown procedures are followed in case of a fire 2.7. Fuel efficiency recordings, calculations, operating log, boiler operation and equipment faults are recorded and reported to the appropriate personnel
3. Shut down and store boiler	3.1. Shutdown and lock-out procedures are followed in line with OHS legislation and statutory regulations 3.2. Condition of boiler is checked and maintenance requirements are recorded and reported

ELEMENT**PERFORMANCE CRITERIA**

- 3.3. Boiler is prepared for inspection process, with valves and fittings removed, in line with statutory requirements
- 3.4. Boiler is cleaned internally and externally in line with statutory and environmental requirements
- 3.5. Mode of **storage** is selected and boiler is stored in line with statutory requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level required for this unit.

Required skills

- Technical skills sufficient to use and maintain relevant tools, machinery and equipment; efficiently and safely operate a steam boiler
- Communication skills sufficient to use appropriate communication and interpersonal techniques with colleagues and others
- Literacy skills sufficient to record and report workplace information; maintain documentation
- Numeracy skills sufficient to measure, estimate and calculate time required to complete a task
- Problem solving skills sufficient to identify problems and equipment faults; demonstrate appropriate response procedures

Required knowledge

- Applicable commonwealth, state or territory legislation, regulations, standards, codes of practice and established safe practices relevant to the full range of processes for operating a steam boiler
- Environmental protection requirements, including the safe disposal of waste material, the safe use and storage of chemicals, the minimisation of carbon emissions, and the cleaning of plant, tools and equipment
- Organisational and site standards, requirements, policies and procedures for operating a steam boiler
- Environmental risks and hazards
- Using energy effectively and efficiently
- Steam boiler operating procedures
- Characteristics and dangers of steam
- Procedures for assessing, diagnosing and testing boilers
- Startup and shutdown procedures

REQUIRED SKILLS AND KNOWLEDGE

- Established communication channels and protocols
- Problem identification and resolution strategies, and common fault finding techniques
- Types of tools and equipment, and procedures for their safe use and maintenance
- Appropriate mathematical procedures for estimating and measuring, including calculating time to complete tasks
- Procedures for recording and reporting workplace information

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

A person who demonstrates competency in this unit must be able to provide evidence that they can safely and efficiently operate a steam boiler in line with organisational requirements

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

The evidence required to demonstrate competency in this unit must be relevant to, and satisfy, all of the requirements of the elements of this unit and include demonstration of:

- following applicable commonwealth, state or territory legislative and regulatory requirements and codes of practice relevant to operating a steam boiler
- following organisational policies and procedures relevant to operating a steam boiler
- starting, operating, monitoring and shutting down a steam boiler in line with statutory requirements and standard operating procedures
- handing over operation of a steam boiler to other personnel

Context of and specific resources for assessment

- Competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of required knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to follow relevant regulatory or Australian Standards requirements
- The following resources should be made available:
 - workplace location or simulated workplace
 - materials and equipment relevant to undertaking work applicable to this unit
 - specifications and work instructions

Method of assessment

- Assessment must satisfy the endorsed Assessment Guidelines of the FPI11 Training Package
- Assessment methods must confirm consistency and accuracy of performance (over time and in a range of

EVIDENCE GUIDE

workplace relevant contexts) together with application of required knowledge

- Assessment must be by direct observation of tasks, with questioning on required knowledge and it must also reinforce the integration of employability skills
- Assessment methods must confirm the ability to access and correctly interpret and apply the required knowledge
- Assessment may be applied under project-related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency
- The assessment environment should not disadvantage the candidate
- Assessment practices should take into account any relevant language or cultural issues related to Aboriginality, gender or language backgrounds other than English
- Where the participant has a disability, reasonable adjustment may be applied during assessment
- Language and literacy demands of the assessment task should not be higher than those of the work role

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.

OHS requirements:

are to be in line with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and

RANGE STATEMENT

may include:

- personal protective equipment and clothing
- safety equipment
- first aid equipment
- fire fighting equipment
- hazard and risk control
- fatigue management
- elimination of hazardous materials and substances
- safe forest practices, including required actions relating to forest fire
- manual handling including shifting, lifting and carrying
- legislation
- organisational policies and procedures
- workplace practices

Environmental requirements
may include:

Legislative requirements:

are to be in line with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice and may include:

- award and enterprise agreements
- industrial relations
- Australian Standards
- confidentiality and privacy
- OHS
- the environment
- equal opportunity
- anti-discrimination
- relevant industry codes of practice
- duty of care

Organisational requirements
may include:

- legal
- organisational and site guidelines
- policies and procedures relating to own role and responsibility
- quality assurance
- procedural manuals
- quality and continuous improvement processes and standards
- OHS, emergency and evacuation procedures
- ethical standards

RANGE STATEMENT

- recording and reporting requirements
- equipment use, maintenance and storage requirements
- environmental management requirements (waste minimisation and disposal, recycling and re-use guidelines)

Work order is to include:

instructions for:

- steam generation
- quantity
- time-span

and may include:

- instructions for the environmental monitoring of work and procedures
- environmental care requirements relevant to the work

Appropriate personnel may include:

- supervisors
- suppliers
- clients
- colleagues
- managers

Steam

is energy derived from boiling water creating expansion within the boiler and therefore pressure

Equipment is to include:

- steam-generating boilers, including:
 - liquid or vapour restricted to water or steam
 - fuel and fuel supply system
 - boiler operations in conjunction with other plant

Communication may include:

- verbal and non-verbal language
- constructive feedback
- active listening
- questioning to clarify and confirm understanding
- use of positive, confident and cooperative language
- use of language and concepts appropriate to individual social and cultural differences
- control of tone of voice

Pre-startup checks

are conducted to ensure:

RANGE STATEMENT

- equipment has been set up correctly
- systems are performing accurately
- equipment is operating to optimum performance

Diagnosis is to include:

use of:

- audio
- visual
- written information

together with:

- water quality
- chemical testing

Boiler house

is normally the isolated room or building where the boiler is located

Emergency shut down

is the immediate shutting off of the equipment to prevent an accident or prevent damage to the machine or product

Records and reports may include:

- fuel efficiency recordings
- calculations
- operating logs
- storage location
- quality outcomes
- hazards
- incidents
- equipment malfunctions

and may be:

- manual
- a computer-based system
- other appropriate organisational communication system

Storage is to include:

- close down time the boiler is inactive
- procedures for shutdown

Unit Sector(s)

Not Applicable

Competency field

Competency field Common Technical