



Australian Government

PPMSTM440 Troubleshoot and rectify boiler plant systems

Release: 2

PPMSTM440 Troubleshoot and rectify boiler plant systems

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.

Application

This unit of competency describes the skills and knowledge required to identify, diagnose, rectify and report faults in boiler plant systems, in the pulp and paper industry.

The unit applies to senior operators and production specialists who troubleshoot and rectify boiler plant systems, in a pulp or paper manufacturing facility. This typically involves working in a facility with complex integrated equipment and continuous operations.

No licensing, legislative or certification requirements apply to this unit at the time of publication. Where the boiler equipment falls under the category for which a High Risk Work Licence is required, this unit should not be used and the appropriate unit should be sought.

Pre-requisite Unit

Nil

Unit Sector

Steam generation (STM)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify and diagnose causes of faults	1.1 Check and plan work according to productivity requirements, environmental sustainability procedures, workplace health and safety and standard operating procedures (SOP) including the use of appropriate personal protective equipment, risks and hazards identification and housekeeping requirements

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.2 Interpret abnormal plant conditions and machine alarms to determine fault type and location 1.3 Undertake physical inspections of plant, equipment and processes to identify faults 1.4 Identify boiler type and locate cause and source of fault 1.5 Isolate faulty plant, if possible, and confirm with production and maintenance 1.6 Confirm diagnosis by access and reference to relevant historical data 1.7 Communicate diagnosis to relevant personnel
2. Rectify faults	2.1 Implement shutdown and isolation procedures 2.2 Repair or replace faulty equipment in accordance with work health and safety and SOP 2.3 Adjust process and systems to restore normal operations 2.4 Communicate normal operations to relevant personnel
3. Record and report operational data	3.1 Document troubleshooting process and responses to corrective actions, as required 3.2 Document variations from standard specifications and boiler operating faults 3.3 Communicate relevant information to appropriate 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, procedure manuals and customer orders relevant to boiler plant systems
Writing	Record accurately and legibly, fault rectifications, using correct technical vocabulary
Oral communication	Select and use appropriate spoken communication strategies with

Skill	Description
	work colleagues and other personnel on site to assist with analysis and resolution of operational problems and to manage troubleshooting and maintenance
Numeracy	- Interpret instruments, gauges and data recording equipment - Use measuring equipment and undertake calculations to aid troubleshooting
Navigate the world of work	- Use electronic and other control systems to control equipment and processes - Access, navigate and enter computer based information
Get the work done	- Maintain situational awareness in the work area - Analyse and use sensory information to adjust process to maintain and coordinate safety, quality and productivity

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
PPMSTM440 Troubleshoot and rectify boiler plant systems Release 2	PPMSTM440 Troubleshoot and rectify boiler plant systems Release 1	Minor changes to performance criteria and knowledge evidence, minor change to licensing statement	Equivalent unit

Links

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

Assessment Requirements for PPMSTM440 Troubleshoot and rectify boiler plant systems

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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:

- identified causes and effects of faults and corrective action on associated processes for the boiler plant system, at least twice in line with required enterprise intervals
- identified system quality and equipment faults within level of responsibility
- implemented isolation and access procedures
- identified and rectified faults in boiler plant systems
- maintained a clean and hazard free work area
- recorded and reported on operational data
- communicated effectively, through written and verbal means, the corrective actions undertaken.

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
- troubleshooting methods that can be applied across boiler plant system faults
- implications of pre operational checks including:
 - low water level alarm
 - high water level alarm
 - low water level
 - alarm lockout
 - hydrostatic test
 - burner management system
 - safety valve test
- documentation and procedures relevant to troubleshooting steam boiler operations, in the pulp and paper industry including:
 - appropriate boiler or pressure vessel operator certification
 - confined space standards and regulations
 - productivity requirements and quality procedures
 - environmental sustainability requirements and practices
 - machinery and plant manufacturing operating manuals
 - enterprise policies and procedures
 - manufacturer's specifications and maintenance documentation
 - safety data sheets
 - operator's log and job sheets
 - incidents reports
- steam generation system, processes and associated services sufficient to troubleshoot including:
 - plant layout
 - theory of operation
 - causes and effects of adjustments made to steam generation plant and processes
 - relationships between steam generation system, processes and associated services
- the use of materials and supplies for boiler plant systems including:
 - chemicals
 - coal
 - oil
 - gas
 - additives
 - air
 - water
 - wood waste
 - steam recovery process products
 - power
- key features of maintenance systems including:

- operator level maintenance as per site agreements
- operator maintenance schedules
- maintenance suppliers
- pro-active maintenance strategies
- use of boiler water treatment system and reasons for treatment
- use of electronic and other control systems, operation and application to make appropriate adjustments that control boiler plant operations.

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 for detecting and addressing faults associated with steam generation operations in a pulp or paper manufacturing facility
 - electronic control systems which includes digital control system, touch screens or robotics required for steam boiler operation
 - PPE suitable for troubleshooting steam boiler operations
- specifications:
 - applicable workplace health and safety and isolation work place procedures, environmental guidelines and safe working requirements, risks and hazard identification and workplace housekeeping requirements
 - sample workplace documentation, procedures and reports including standard operating procedures, quality procedures, environmental sustainability requirements/practices, plant manufacturing operating manuals, enterprise policies and procedures, oil or chemical spills and disposal guidelines, plant isolation documentation, safe work documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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