



Australian Government

Department of Education, Employment and Workplace Relations

FPPSTM4A Troubleshoot and rectify boiler plant systems

Release: 1

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Modification History

Not applicable.

Unit Descriptor

Not applicable.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Identify and diagnose causes of faults.	1.1 Plant assessments and system alarm systems are interpreted to determine fault type and location.
	1.2 Routine physical inspections of plant and processes are made to identify faults.
	1.3 Cause and source of problem is identified and

located.

- 1.4 Faulty plant is isolated, if possible, and confirmed with production and maintenance.
 - 1.5 Relevant historical data is accessed/referred to, to confirm diagnosis.
 - 1.6 Diagnoses are communicated to relevant personnel.
 - 1.7 Work is completed within OH&S, Standard Operating Procedures (SOP), environmental and safe working requirements and practices.
- 2 **Rectify systems/plant equipment faults.**
- 2.1 Emergency stop/shutdown, isolation and lock-out procedures are initiated prior to fault rectification.
 - 2.2 Faulty equipment/instrumentation is isolated and caused to be repaired/replaced.
 - 2.3 Fine tuning adjustments to process and systems are made to return to specifications.
 - 2.4 Restoration of machine/system to normal operation is verified and communicated to relevant personnel.
 - 2.5 Work is completed within OH&S, SOP, environmental and safe working requirements and practices.
- 3 **Rectify product quality and distribution faults.**
- 3.1 Product quality faults/variations are identified by observation, systematic sampling and testing.
 - 3.2 Samples for a range of tests are taken according to established enterprise procedures and SOP.
 - 3.3 Test results are interpreted and operations are adjusted to correct variations from specification.
 - 3.4 Out of specification product is dealt with according to SOP.
 - 3.5 Work is completed within OH&S, SOP, environmental and safe working requirements and practices.

4 Record and report operational data.

- 4.1 Variations from standard specification and machine operation faults are documented/logged.
- 4.2 Indications of performance variance are entered into log.
- 4.3 Assessment and evaluation of causes of variations and corrective action undertaken is recorded as required.
- 4.4 Relevant information is communicated to appropriate personnel to prepare for modification to the plant output.

Required Skills and Knowledge

Not applicable.

Evidence Guide

Explains types, causes and effects of plant shutdowns.
Explains plant start-up and shutdown procedures.
Describe plant operation and control mechanisms.
Outlines impact and effect of inappropriate responses to shut.
Explains causes and effects of system faults and rectification requirements.
Implements troubleshooting guides and diagnostic procedures.
Diagnoses production and quality faults, effects and causes.
Gathers, analyses and interprets data.
Conducts routine checking procedures during plant/systems operation.
Explains types and purpose of tests.
Sets up and operates test equipment.
Explains sampling and testing procedures.
Interprets test results.
Logs and records data.
Demonstrates keyboarding and computer access skills.
Uses effective communication.
Explains boiler water treatment system and reasons for treatment.
Explains statutory responsibilities.
Identifies causes of shutdown and responds appropriately.
Initiates isolations and lock-outs in compliance with SOP.
Identifies, locates and rectifies or causes to be rectified operational and quality faults.
Confirms and maintains required production throughput after restart.
Maintains plant operation within specification.
Communicates with appropriate personnel.
Works within OH&S, SOP, environment and safe working requirements and practices.

Electrical Power Generation

FPPEPG1A: Manage a power generation system start-up.
FPPEPG2A: Monitor and control power generation system.
FPPEPG3A: Co-ordinate power generation system shutdown.
FPPEPG4A: Conduct a technical inspection of power generation plant and equipment.
FPPEPG5A: A Troubleshoot and rectify power generation system.

Please note:

A single Range Statement has been prepared to cover all Units in Electrical Power Generation. The actual context/conditions for each Unit would be drawn from the mill's customised version of this Range Statement.

Range Statement

The competencies in this unit refer to those related to the management and operation of power generation and includes steam turbine driven alternators, auxiliary plant, electricity generation, regulation and distribution systems used in the pulp and paper making industry.

Materials/supplies:

water
steam
electricity
gas

Equipment:

Equipment appropriate to power generation processes, and may include the following:

boilers
high and low voltage transformers
steam/gas turbines
and switchboards
water systems and auxiliary plant
circuit breakers
AC/DC generation and distribution systems
protective equipment
measuring/recording equipment
Legislation, policy and procedures:
OH&S
appropriate endorsed operator
environmental and statutory legislation
licences
enterprise policies and procedures
local power authority policies and procedures
Standard Operating Procedures (SOP)
Documentation/procedures/reports:
operational logs/reports
maintenance logs
SOP documentation
Materials Safety Data Sheets (MSDS)
Process and instrument diagrams

Maintenance:

as per site agreement
maintenance schedules
maintenance systems

Sampling/testing:

plant/system operations and process steam supply monitoring
as per site agreements

Technology:

full and semi automated plant and equipment
manually operated plant and equipment
controlled systems - PLC or DCS
electronic measuring and monitoring equipment

Communication channels:

internal/external suppliers and customers
maintenance services
team members

product/services co-ordinator

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Describe plant operation and control mechanisms.

Outlines impact and effect of inappropriate responses to shut.

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OH&S

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Range Statement

Range Statement

The competencies described in this group of units relate to those functions inclusive of the following boiler types:

Please note:

A single Range Statement has been prepared to cover all Units in Steam Generation. The actual context/conditions for each Unit would be drawn from the mill's customised version of this Range Statement.

- . fire tube
- . saturated boiler
- . water tube
- . super heated

and may be operated in conjunction with other steam driven plant and operations including:

- . paper making machines
- . turbines
- . digesters
- . heating plant

Materials/supplies:

- . chemicals
- . coal
- . oil
- . gas
- . additives
- . air
- . water
- . wood waste
- . steam
- . recovery process products
- . power

Equipment:

Equipment appropriate to steam generation processes and may include the following:

- . boiler and auxiliary plant
- . boiler heating systems
- . 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
- . flare detection equipment
- . hand and power tools

Legislation, policy and procedures:

- . OH&S
- . environmental and statutory legislation

- . enterprise policies and procedures
- . Standard Operating Procedures (SOP)
- . appropriate boiler/pressure vessel operator certification

Documentation/procedures/reports:

- . SOP
- . job sheets
- . grade specifications
- . manufacturer's specifications
- . maintenance logs
- . statutory requirements
- . Materials Safety Data Sheets (MSDS)
- . operator's log
- . process and instrument diagrams

Maintenance:

- . as per site agreement
- . maintenance schedules
- . maintenance systems

Sampling/testing: [excludes FPPSTM3A]

- . feed water quality
- . assessments of process operations

Technology:

- . fully automated, semi automated, manually operated plant and equipment
- . enter/extract computer data, electronic screens and alarms, analogue and digital instrumentation

Communication channels:

- . internal/external customers and suppliers
- . statutory authorities
- . team members
- . maintenance/services co-ordinators
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Unit Sector(s)

Not applicable.