

Unit ID: 1433

Domain **HYDROMETALLURGICAL PROCESSING**
Title: **Operate and monitor boiler steam and**
 water cycle

Level: 4

Credits: 18

Purpose

This unit standard is intended for those who carry out metallurgical processing operations. People holding credit for this unit standard are able to: Plan and prepare to operate and monitor a boiler; demonstrate knowledge relating to the generation of steam; conduct pre-operational checks; operate and monitor plant; carry out routine operator maintenance; and complete duties pertaining to the steam generation process.

Special Notes

1. Entry information:

Prerequisite

- 1449 - *Comply with health, safety and environmental rules and regulations pertaining to processing operations; or demonstrated equivalent knowledge and skills.*

2. Assessment evidence may be collected from a real workplace or a simulated workplace in which processing operations are carried out.

3. *'Boiler'* may include but is not limited to electric boiler; diesel boiler; coal boiler; and waste-heat boiler.

4. Safe working practices include day-to-day observation of safety policies and procedures and compliance with emergency procedures.

5. Specifications refer to any, or all of the following: manufacturer's specifications and recommendations, and workplace specific requirements.

6. Performance of all elements in this unit standard must comply with relevant regulatory, legislative, workplace requirements and/or manufacturers' specifications.

7. Regulations and legislation, including subsequent amendments, relevant to this unit standard may include but are not limited to the following:

- Labour Act, No. 11, 2007
- Mineral Act, No. 33, 1992
- Mine Health and Safety Regulations, 1999
- Regulations relating to the Health and Safety of employees at work, 1997 and all industry specific regulations, legislations, code of practice, or code of conduct.

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority. All approved unit standards, qualifications and national assessment arrangements are available on the Namibia Training Authority website www.nta.com.na.

Elements and Performance Criteria

Element 1: Plan and prepare to operate and monitor a boiler **Performance Criteria**

- 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, explained, clarified and applied to the allocated task.
- 1.2 Safety and security requirements, including personal protective clothing and equipment are obtained from the site safety plan, workplace policies and procedures, explained, and applied to the allocated task.
- 1.3 Equipment, tools, fuel, lubricants, attachments and accessories selected to carry out tasks are checked for consistency with the requirements of the job, their usability and any faults rectified or reported prior to commencement of work.
- 1.4 Environmental protection requirements are identified from the project environmental management plan and applied to the allocated task.
- 1.5 Work area is inspected and prepared according to workplace procedures.

Element 2: Demonstrate knowledge relating to the generation of steam

Range

Principal components include boiler components; steam and water cycle components; auxiliary systems; safety devices; and interlock system.

Performance Criteria

- 2.1 The actions and conditions pertaining to a safe, healthy environment in the steam generation process are described.
- 2.2 The importance of steam generation is described in terms of achieving specified production requirements.
- 2.3 Hazards and associated risks are identified through relevant risk assessment procedures.
- 2.4 The principal components of the steam generation system are identified and their functions described in terms of design and operational requirements.

- 2.5 The colour coding and symbolic signs pertaining to the steam generation process are explained.
- 2.6 The communication requirements pertaining to the steam generation process are described.
- 2.7 Corrective actions, in case of sub-standard conditions and problems be encountered, are described.

Element 3: Conduct pre-operational checks

Range

Shutdown may include long-term shutdown; short-term shutdown; and hot stand-by shutdown

Performance Criteria

- 3.1 Workplace hazards and associated risks are identified, minimised or eliminated according to workplace procedures and legislative requirements.
- 3.2 The steam generation system, including boiler steam and water cycle, is examined and substandard conditions are reported to appropriate personnel according to workplace procedures.
- 3.3 Start-up and shutdown procedures are conducted according to manufacturer's specifications.

Element 4: Operate and monitor plant

Performance Criteria

- 4.1 Workplace hazards and associated risks are identified, minimised or eliminated according to workplace procedures and legislative requirements.
- 4.2 The plant is operated according to workplace procedures.
- 4.3 Boiler operations, including steam and water cycle as part of the steam generation process, are monitored and controlled, and optimum operation ensured through effective communication according to workplace procedures.
- 4.4 If necessary, corrective and/or reporting actions are taken according to workplace procedures.

Element 5: Carry out routine operator maintenance

Performance Criteria

- 5.1 Workplace hazards and associated risks are described, identified, minimised or eliminated according to workplace procedures and legislative requirements.
- 5.2 The work area is prepared in readiness for maintenance work to be carried out.

- 5.3 Operational tests are performed according to workplace procedures.
- 5.4 Maintenance, replacement or other maintenance is carried out within scope of responsibility according to manufacturer's specifications and workplace procedures.
- 5.5 System is restored to operational status and relevant documentation completed.

Element 6: Complete duties pertaining to the steam generation process

Range

Housekeeping may include but is not limited to ensure the work area is ready for next user; remove work materials to designated locations; correctly identify waste and re-usable material; and remove waste and re-usable materials to designated locations.

Performance Criteria

- 6.1 Task-specific tools, personal protective and safety equipment, are cleaned, maintained and stored for further use according to workplace procedures.
- 6.2 Good housekeeping practices are maintained according to workplace procedures.
- 6.3 Reporting and recording requirements are met according to workplace procedures.
- 6.4 Work related documents are completed according to job requirements and workplace procedures.

Registration Data

Subfield:	Metallurgy
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