Title	**Meet requirements of person responsible for an unattended small steam or hot water boiler**		
Level	**4**	**Credits**	**10**

Purpose	This unit standard is intended for operators who are responsible for an unattended, small steam or hot water boiler as defined in the *Approved Code of Practice for the Design, Safe Operation, Maintenance and Servicing of Boilers*, sections 4, 5, 7 and 8 respectively. People credited with this unit standard are able to: demonstrate knowledge of the requirements for the supervision and operation of unattended small steam or hot water boilers; demonstrate knowledge of a site steam or hot water boiler; operate and monitor an unattended boiler; demonstrate knowledge of water treatment systems and chemicals, potential hazards of boiler water treatment chemicals, consequences of incorrect water treatment, returned condensate systems, and spill handling procedures for chemicals; and operate and monitor the boiler feedwater system for an unattended boiler.

Classification	Energy and Chemical Plant > Operation of Energy and Chemical Plant

Available grade	Achieved

Guidance Information

1 Legislation and the code relevant to this unit standard includes but is not limited to:
- Health and Safety at Work Act 2015;
- Resource Management Act 1991(RMA);
- Hazardous Substances and New Organisms Act 1996;
- *Approved Code of Practice for the Design, Safe Operation, Maintenance and Servicing of Boilers,* Occupational Health and Safety Service, 2000; and any subsequent amendments.

2 Definitions
Boiler refers to a device comprising an arrangement of mainly pressure containment parts such as drums, vessels, tubes, coils, and interconnecting parts used, or intended to be used, to generate steam at temperatures above 100 degrees centigrade by the use of a directly applied combustion process, or by the application of heated gases. It includes all combustion equipment, fans, feed and circulating pumps, pressure fittings, superheaters, reheaters, economisers, boiler piping, supports, mountings, valves, gauges, controls, water level and combustion management systems as are necessary to ensure the pressure integrity of the boiler,

or are necessary for its safe operation.
Code refers to the current *Approved Code of Practice for the Design, Safe Operation, Maintenance and Servicing of Boilers*, Occupational Safety and Health Service, 2000.
MOSHH refers to *Approved Code of Practice for the Management of Substances Hazardous to Health (MOSHH) in the Place of Work*, Occupational Safety and Health Service, 1997.
Organisational requirements – documented policies and procedures or other directions provided to staff for boiler start up, operation, and shut down. These may include: manufacturers' procedures; plant procedures; suppliers' instructions; site signage; legislative requirements; codes of practice; company health and safety plans; on site briefings; and supervisor's instructions.
Site boiler refers to the boiler at the plant or unit at which the person is employed.

3 The Environmental Protection Authority (EPA) is responsible for assessing and approving hazardous substances and, where appropriate, setting controls on the way the substance is used.

4 For the purposes of assessment:
- evidence for the practical components of this unit standard must be supplied from the workplace.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of the requirements for the supervision and operation of unattended small steam or hot water boilers.

Performance criteria

1.1 Describe industry requirements for quality systems in accordance with the Code.

1.2 Describe boiler classifications in accordance with the Code.

Range classifications include but are not limited to – attended, limited attendance, unattended, hot water.

1.3 Identify site boiler classification, compliance and site requirements to operate an unattended boiler in accordance with the Code.

Range requirements – supervisory, attendance.

1.4 Describe the key roles of a 'Responsible Person' in accordance with the Code.

Range may include – general supervision, routine testing requirements for subject boiler, feedwater quality monitoring, record maintenance, start-up and shutdown operations, and emergency procedures; evidence is required for at least three roles.

1.5 Describe site-specific safety and environmental procedures associated with the boiler in accordance with the Code.

1.6 Describe on site procedures for accessing appropriate assistance in an emergency in accordance with the Code.

Range may include – On-Call qualified operator, approved maintenance contractor, boiler controller;
evidence for at least three types of assistance is required.

Outcome 2

Demonstrate knowledge of a site steam or hot water boiler.

Performance criteria

2.1 Describe boiler mountings and equipment in terms of their purpose and in accordance with organisational requirements.

Range equipment includes but is not limited to – instrumentation, gauge glasses, safety devices, fuel system, burners, fans, valves, dosing system, feedwater system, safety valves, blowdown system, combustion air system.

2.2 Describe operational and safety controls in terms of their purpose and in accordance with organisational requirements.

Range includes but is not limited to – water level monitoring and control strategy, first and second low-level protection devices, high water level cut-out, high steam pressure cut-out, condensate monitoring, flame failure protection device, combustion chamber thermal protection device;
may include, for on-site unattended boiler(s) – the feedwater availability protection device, low pressure protection device.

2.3 Identify and describe emergency shutdown devices in terms of their location and purpose and in accordance with organisational requirements.

2.4 Identify and describe data on the boiler visual display panel in terms of boiler and auxiliary equipment operating status and in accordance with organisational requirements.

Outcome 3

Operate and monitor an unattended boiler.

Performance criteria

3.1 Locate the organisational standard operating procedures for boiler start-up, shutdown, and routine operation in accordance with organisational requirements.

3.2 Carry out start-up and shutdown of the boiler in accordance with organisational requirements.

3.3 Interact with the boiler controls and describe the correct actions to take for alarms in accordance with organisational requirements.

3.4 Carry out and document routine boiler operation procedures in accordance with the Code and organisational requirements.

Range monitoring, water testing, water treatment.

3.5 Carry out boiler gauge glass blowdown procedures in accordance with organisational requirements.

3.6 Identify and evaluate boiler gauge glass problems and describe solutions in accordance with organisational requirements.

Range leakage, blockage, breakage, false reading.

3.7 Carry out routine testing of cut outs and alarms in accordance with organisational requirements.

Range water level control, low-level alarms and cut out, standby feed pump.

3.8 Carry out checks after shutdown in accordance with organisational requirements.

3.9 Isolate the boiler for maintenance in accordance with organisational requirements.

Outcome 4

Demonstrate knowledge of water treatment systems and chemicals, potential hazards of boiler water treatment chemicals, consequences of incorrect water treatment, returned condensate systems, and spill handling procedures for chemicals.

Performance criteria

4.1 Identify site-specific water treatment systems and describe their purpose in terms of their effect on the quality of the feedwater.

Range includes but is not limited to – water softener.

4.2 Identify site-specific chemicals used in the boiler feedwater system and describe their purpose in terms of their effect on the quality of the feedwater.

4.3 Identify and explain the potential hazards associated with each boiler water treatment chemical in terms of their effect on personnel, plant and the environment, consistent with Safety Data Sheet details.

4.4 Describe the consequences of incorrect water treatment in terms of their effect on safe operation of the boiler.

Range scale, corrosion, foaming, carry over.

4.5 Describe returned condensate systems in terms of the benefits and hazards.

Range evidence for at least two benefits and two hazards is required.

4.6 Describe spill handling procedures for each water treatment chemical in terms of precautions and actions to be taken.

Outcome 5

Operate and monitor the boiler feedwater system for an unattended boiler.

Performance criteria

5.1 Handle, dose, and store feedwater chemicals in accordance with suppliers' instructions and the MOSHH.

5.2 Collect, analyse and log boiler water samples, identify deviations, and take corrective action.

Planned review date	31 December 2024

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 June 2005	31 December 2014
Rollover and Revision	2	25 July 2006	31 December 2014
Review	3	22 May 2009	31 December 2016
Review	4	24 October 2014	31 December 2016
Reinstatement	5	20 July 2017	31 December 2022
Review	6	27 February 2020	N/A

Consent and Moderation Requirements (CMR) reference	0079

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact the Primary ITO standards@primaryito.ac.nz if you wish to suggest changes to the content of this unit standard.