

40451 Operate unfired pressure equipment in an energy and chemical plant

Kaupae Level	4
Whiwhinga Credit	8
Whāinga Purpose	<p>This skill standard is intended for people working as boiler operators and energy and chemical process operators in an energy and chemical plant.</p> <p>People credited with this skill standard are able to: describe unfired pressure equipment used in the energy and chemical industry, describe on-site unfired pressure equipment; and operate unfired pressure equipment in an energy and chemical plant.</p> <p>This skill standard can be used in the New Zealand Energy and Chemical qualifications at Level 4 and above.</p>

Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
1. Describe unfired pressure equipment used in the energy and chemical industry.	a. Describe Health and Safety requirements for unfired pressure equipment in accordance with the Code.
	b. Describe unfired pressure equipment in terms of type and use.
	c. Describe materials used for the construction of unfired pressure equipment in terms of process conditions and product compatibility.
	d. Describe internal features of unfired pressure vessels in terms of function and operating concepts.

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
2. Describe on-site unfired pressure equipment in an energy and chemical plant.	a. Describe unfired pressure equipment to be operated in terms of its function.
	b. Identify the operating parameters for unfired pressure equipment on site.
	c. Identify equipment malfunctions that can occur in unfired pressure equipment and explain the operational steps and techniques used to respond to each malfunction.
	d. Identify deviations from normal operating parameters that can occur in unfired pressure equipment and explain the operational steps and techniques used to respond to each deviation.
3. Operate unfired pressure equipment in an energy and chemical plant.	a. Locate unfired pressure equipment in accordance with the site-specific asset tagging system and organisational requirements.
	b. Operate unfired pressure equipment using safe work practices in accordance with organisational requirements.
	c. Carry out checks and routine procedures in accordance with organisational requirements.
	d. Complete all plant documentation related to the process and equipment operation in accordance with organisational requirements.

Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

Assessment specifications:

- evidence for the practical components of this skill standard must be supplied from the workplace.
- 1a: provide a minimum of four (4) duties in relation to the operation of pressure equipment as stipulated by the Health and Safety in Employment (Pressure Equipment, Cranes, and Passenger Ropeways) Regulations 1999 (2017 Amendment).
- 1b: evidence of five (5) types is required.
- 1c: evidence for the five (5) types of equipment identified in 1b is required.
- 1d: evidence of the five (5) types of equipment identified in 1b is required.
- 2a: evidence of a minimum of four (4) pieces of equipment is required; minimum of four (4) operating parameters for unfired pressure equipment on your site.
- 2b: evidence of a minimum of four (4) pieces of equipment is required.
- 2c: evidence of one (1) malfunction for each piece of equipment is required.

- 2d: evidence of one (1) deviation from normal operating parameters for each piece of equipment is required.
- 3a: evidence of a minimum of four (4) pieces of equipment is required.
- 3b: evidence of a minimum of four (4) pieces of equipment is required.

Definitions:

Code – the current Approved Code of Practice for the Design, Safe Operation, Maintenance and Servicing of Boilers, Occupational Safety and Health Service, and other relevant associated codes, <https://worksafe.govt.nz/dmsdocument/1571-acop-the-design-safe-operation-maintenance-and-service-of-boilers>.

Energy and chemical plant may be in – petrochemical, agri-nutrient, power generation, dairy processing, meat processing, and wood fibre manufacturing, or other plants that operate with a combination of high temperatures, pressures, steam and/or chemicals in gas, liquid or solid form.

Organisational requirements – documented policies and procedures. These may include: equipment manufacturers' procedures; plant procedures; suppliers' instructions; site signage; codes of practice; company health and safety plans; on-site briefings; and supervisor's instructions. This includes all regulatory and legislative obligations that apply to the plant.

Plant – the operational unit, equipment and/or workplace at which the person is working.

Unfired pressure equipment – equipment that is operated under pressure but is not directly fired.

Ngā momo whiwhinga | Grades available

Achieved

Ihirangi waitohu | Indicative content

- Unfired pressure equipment such as – columns, accumulators, separators, knockout drums, air receivers, storage cylinders, reactors, evaporators, digesters, heat recovery steam generators, electric boilers, reboiler.
- Construction materials for unfired pressure equipment, such as – copper, copper alloys, mild steel, alloy steels, ceramics, teflon.
- Internal features of unfired pressure vessels, such as – impingement plates, deflectors, standpipes, boots, wells, demister pads, compensation plates.

Rauemi | Resources

Legislation relevant to this skill standard includes but is not limited to:

- Health and Safety at Work Act 2015;
 - Hazardous Substances and New Organisms Act 1996;
 - Resource Management Act 1991;
- and any subsequent amendments.

Pārongo Whakaū Kouna | Quality assurance information

Ngā rōpū whakatau-paerewa Standard Setting Body	Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council
Whakaritenga Rārangi Paetae Aromatawai DASS classification	Manufacturing > Energy and Chemical Plant > Operation of Energy and Chemical Plant
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga CMR	0079

Hātepe Process	Putanga Version	Rā whakaputa Review Date	Rā whakamutunga mō te aromatawai Last date for assessment
Rēhitatanga Registration	1	24 April 2025	N/A
Kōrero whakakapinga Replacement information	This skill standard replaced unit standard 3036.		
Rā arotake Planned review date	31 December 2029		

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council at qualifications@hangaarorau.nz to suggest changes to the content of this skill standard.