

## Field      Manufacturing

### Registration of skill standards and review of *Operation of Energy and Chemical Plant* unit standards (Level 2 and 3)

Subfield	Domain	ID
Energy and Chemical Plant	Operation of Energy and Chemical Plant	19418, 18423, 21459, 21461, 21462, 21464, 28161, 3045, 3047, 32028, 32107, 4553, 9582, 9585, 9586, 9607, 9618

The Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council has completed the review of the unit standards listed above.

**Date new versions published**

**March 2025**

**Planned review date**

**December 2029**

#### Summary

Hanga-Aro-Rau Manufacturing, Engineering, and Logistics Workforce Development Council met with employers and Te Pūkenga subsidiaries between September 2023 and June 2024 to review the unit standards listed above.

These unit standards were originally developed to meet the graduate profile outcomes (GPOs) in the New Zealand Certificate in Energy and Chemical Process Operations (Level 3) with optional strand in Boiler Operations [Ref: 4128], and associated unit standards.

As part of the rollout of skill standards, the review panel agreed to create a new suite of skill standards to support programmes leading towards the above qualification. However, due to the highly regulated nature of the Energy and Chemical industry, and as the majority of unit standards were considered fit for purpose by industry stakeholders, most of the content of the unit standards was retained to enable programme continuity.

#### Main changes

- 17 unit standards were reviewed and were replaced with 17 skill standards to reflect current industry practice.
- Skill standard 40374 was developed to meet the requirements of a new micro-credential designed to encourage new or potential entrants into the energy and chemical industry. The skill standard is intended to give a basic understanding of the Energy and Chemical industry.
- Skill standard 40376 was developed to reflect new technologies covering organisations that are using electric boilers rather than traditional boiler systems.

**Category C and D standards will expire at the end of December 2026**

#### Impact on existing organisations with consent to assess

Current consent for			Consent extended to		
Nature of consent	Classification or ID	Level	Nature of consent	Classification or ID	Level
Standard	19418	2	Standard	40375	2
	9585	3		40388	3
	9607	3		40390	3

## Detailed list of standards – classification, title, level, and credits

All changes are in **bold**.

Key to review category	
<b>A</b>	Dates changed, but no other changes are made - the new version of the standard carries the same ID and a new version number
<b>B</b>	Changes made, but the overall outcome remains the same - the new version of the standard carries the same ID and a new version number
<b>C</b>	Major changes that necessitate the registration of a replacement standard with a new ID
<b>D</b>	Standard will expire and not be replaced

Engineering and Related Technologies > Energy and Chemical Plant > Operation of Energy and Chemical Plant

ID	Title	Level	Credit	Review Category
3045	Demonstrate knowledge of and operate solid handling systems in an energy and chemical plant	3	5	C
<b>40383</b>	<b>Operate solid handling systems in an energy and chemical plant</b>	<b>3</b>	<b>5</b>	<b>New</b>
3047	Demonstrate knowledge of, interpret, and sketch process drawings for an energy and chemical plant	3	5	C
<b>40384</b>	<b>Interpret and create process drawings for an energy and chemical plant</b>	<b>3</b>	<b>5</b>	<b>New</b>
4553	Describe, operate, and monitor pumps, fans, and compressors used in an energy and chemical plant	3	10	C
<b>40387</b>	<b>Operate and monitor pumps, fans, and compressors used in an energy and chemical plant</b>	<b>3</b>	<b>10</b>	<b>New</b>
9582	Demonstrate knowledge of tanker loading and safety equipment, and load product in an energy and chemical plant	3	3	D
9585	Demonstrate knowledge of and conduct pigging activities in an energy and chemical pipeline	3	3	C
<b>40388</b>	<b>Conduct pigging activities in an energy and chemical pipeline</b>	<b>3</b>	<b>3</b>	<b>New</b>
9586	Prepare for and transfer energy and chemical bulk product by pipeline	3	4	C
<b>40389</b>	<b>Transfer energy and chemical bulk product by pipeline</b>	<b>3</b>	<b>4</b>	<b>New</b>
9607	Describe chemical mixing safety, and use chemicals for batch production in an energy and chemical plant	3	3	C
<b>40390</b>	<b>Use chemicals for batch production in an energy and chemical plant</b>	<b>3</b>	<b>3</b>	<b>New</b>
9618	Describe and use energy and chemical industry documentation	3	3	D
18423	Demonstrate knowledge of distillation equipment in an energy and chemical plant	3	12	C
<b>40377</b>	<b>Recognise distillation equipment and its purpose in an energy and chemical plant</b>	<b>3</b>	<b>12</b>	<b>New</b>
19418	Demonstrate basic knowledge of chemistry relevant to energy and chemical processes	2	4	C
<b>40375</b>	<b>Outline foundational chemistry concepts relevant to energy and chemical processes</b>	<b>2</b>	<b>4</b>	<b>New</b>

ID	Title	Level	Credit	Review Category
21459	Demonstrate knowledge of pipework and fittings used in an energy and chemical plant	3	5	C
<b>40378</b>	<b>Recognise the function and design of pipework and fittings used in an energy and chemical plant</b>	<b>3</b>	<b>5</b>	<b>New</b>
21461	Demonstrate knowledge of the basic principles of steam generation and combustion relating to boiler operation	3	5	C
<b>40379</b>	<b>Explain the principles of steam generation and combustion relating to boiler operation</b>	<b>3</b>	<b>5</b>	<b>New</b>
21462	Demonstrate knowledge of the equipment and systems used for steam generation in boilers	3	8	C
<b>40380</b>	<b>Monitor equipment and systems used for steam generation in boilers</b>	<b>3</b>	<b>8</b>	<b>New</b>
21464	Demonstrate knowledge of basic thermodynamics relevant to the energy and chemical industry	3	5	C
<b>40381</b>	<b>Outline foundational thermodynamic concepts relevant to the energy and chemical industry</b>	<b>3</b>	<b>5</b>	<b>New</b>
28161	Demonstrate knowledge of unfired pressure equipment used in the energy and chemical industry and plant	3	5	C
<b>40382</b>	<b>Explore the function and design of unfired pressure equipment used in the energy and chemical industry and plant</b>	<b>3</b>	<b>5</b>	<b>New</b>
32028	Demonstrate knowledge of work control procedures in an energy and chemical plant	3	3	C
<b>40385</b>	<b>Explain work control procedures in an energy and chemical plant</b>	<b>3</b>	<b>3</b>	<b>New</b>
32107	Demonstrate and apply knowledge of hazards and handling of chemicals in an energy and chemical plant	3	7	C
<b>40386</b>	<b>Apply processes for safe handling of chemicals in an energy and chemical plant</b>	<b>3</b>	<b>7</b>	<b>New</b>
<b>40374</b>	<b>Define energy production and use in New Zealand</b>	<b>2</b>	<b>3</b>	<b>New</b>
<b>40376</b>	<b>Perform electric boiler plant operations</b>	<b>3</b>	<b>8</b>	<b>New</b>