40452 Operate a product storage system in an energy and chemical plant

Kaupae | Level	4
Whiwhinga | Credit	8
Whāinga | Purpose	This skill standard is intended for people working as boiler operators and energy and chemical process operators in an energy and chemical plant. People credited with this skill standard are able to: describe product storage equipment and systems; and malfunctions, deviations, and faults of product storage equipment and systems, in an energy and chemical plant. They are also able to operate the product storage system in an energy and chemical plant. This skill standard can be used in the New Zealand Energy and Chemical qualifications at Level 4 and above.

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

Hua o te ako | Learning outcomes	**Paearu aromatawai** | Assessment criteria
1. Describe product storage equipment and systems in an energy and chemical plant.	a. Describe types of product storage in terms of design concepts and suitability for different products.
	b. Describe the product storage system in terms of the purpose and operation of components, process controls and protection systems.
	c. Describe the types and operation of auxiliary equipment and systems used in relation to product storage.
	d. Describe components of storage vessels in terms of their purpose.
	e. Describe hazards of static electricity in terms of product storage requirements.

Hua o te ako | Learning outcomes	**Paearu aromatawai** | Assessment criteria
2. Describe malfunctions, deviations, and faults of product storage equipment and systems in an energy and chemical plant.	a. Identify equipment malfunctions that can occur in the product storage system and explain the operational steps and techniques used to respond to each malfunction.
	b. Identify deviations from normal operating parameters that can occur in the product storage system and explain the operational steps and techniques used to respond to each deviation.
	c. Describe potential product storage problems in terms of organisational requirements.
	d. Identify construction materials used for storage of products in terms of their use.
3. Operate the product storage system in an energy and chemical plant.	a. Locate product storage equipment in accordance with site-specific identification coding system and organisational requirements.
	b. Operate product storage equipment using safe work practices in accordance with organisational requirements.
	c. Carry out checks and routine procedures on product storage equipment in accordance with organisational requirements.
	d. Complete all plant documentation related to the product storage system 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: evidence of four (4) types is required.
- 1c: auxiliary equipment includes but is not limited to – mixing, heating, transfer, safety, ventilation; systems include but are not limited to – fire protection, heat tracing, sampling, purge, blanketing, spill containment.
- 1d: components include but are not limited to – shell, roof, dip hatch, flame arrester, earth strap, roof drain, vessel drain, vent, vacuum breaker, instrumentation, pontoon, roof legs.
- 1e: evidence of two (2) hazards is required.
- 2a: evidence of three (3) equipment malfunctions is required.
- 2b: evidence of three (3) deviations is required.
- 2c: evidence of three (3) product storage problems is required.
- 2d: evidence of three (3) different construction materials is required.

Definitions:

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.

Ngā momo whiwhinga | Grades available

Achieved

Ihirangi waitohu | Indicative content

- Product storage, such as – open roof tank, fixed roof tank, floating roof tank, sphere, bullet, sump, drum, tanker, silo, hopper, stockpile.

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 Kounga | 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 3048.		
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.