40466 Review process safety incidents in an energy and chemical plant

Kaupae | Level	5
Whiwhinga | Credit	10
Whāinga | Purpose	This skill standard is intended for experienced people working as boiler operators, energy and chemical process operators, and senior managers in an energy and chemical plant. People credited with this skill standard are able to: outline the principles and application of process safety; explain the role of operations personnel in process safety, and safety systems management; and review process safety incident reporting and practices, in an energy and chemical plant. This skill standard can be used in the New Zealand Energy and Chemical qualifications at Level 5.

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

Hua o te ako | Learning outcomes	**Paearu aromatawai** | Assessment criteria
1. Outline the principles and application of process safety in an energy and chemical plant.	a. Describe the key elements of a process safety plan and the contribution of each element to overall safety.
	b. Describe the term 'Loss of primary containment' (LOPC) and its relevance to process safety.
	c. Identify process hazards and explain how the safety controls or barriers detect, respond to, and mitigate risks.
2. Explain the role of operations personnel in process safety, and safety systems management in an energy and chemical plant.	a. Describe the role of operations personnel in terms of process safety in accordance with organisational requirements.
	b. Explain the procedures for operations personnel to disable and override engineered safety devices and systems in accordance with organisational requirements.
3. Review process safety incident reporting and practices in an energy and chemical plant.	a. Identify the organisational requirements for the reporting of process safety incidents and describe severity criteria in terms of the tier of incident reported.
	b. Review previous plant related process safety incidents and identify plant events and the actions taken to prevent reoccurrence 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: key elements include but are not limited to – inherent safe design, operating integrity, asset integrity, process safety culture, quality assurance and control, continuous improvement and safety monitoring.
- 3b: evidence of two (2) previous plant events 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.

Process hazards – inherent dangers (e.g. high-pressure steam, chemical, stored energy). These process hazards are contained by multiple protective barriers. These barriers may be engineered or behavioural controls.

Process safety – a disciplined framework for managing the integrity of hazardous operating systems and processes by applying good design principles, engineering, and operating and maintenance practices.

Process safety incident – an incident that has resulted in or has the potential to result in the unintentional release of chemicals, energy, or other harmful materials during the course of their processing, production, piping and/or storage at a facility.

Ngā momo whiwhinga | Grades available

Achieved

Ihirangi waitohu | Indicative content

None

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.

ANSI/API RP754 Process Safety Performance Indicators for the Refining and Petrochemical Industries is the standard for reporting process safety related indicators https://www.api.org/oil-and-natural-gas/health-and-safety/refinery-and-plant-safety/process-safety/process-safety-standards/rp-754.

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 28167.		
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.