

<b>Title</b>	<b>Demonstrate knowledge of and review process safety incidents in an energy and chemical plant</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	<p>This unit standard is intended for experienced people working as boiler operators and energy and chemical process operators in an energy and chemical plant.</p> <p>People credited with this unit standard are able to: demonstrate knowledge of the application of process safety; the role of operations staff in process safety, and procedures to disable or override engineered safety devices and systems; and identify the standard used for reporting process safety incidents and severity criteria, and review previous process safety incidents and actions taken, in an energy and chemical plant.</p>
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<b>Classification</b>	Energy and Chemical Plant > Operation of Energy and Chemical Plant
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<b>Available grade</b>	Achieved
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## Guidance Information

1 Legislation relevant to this unit 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.

2 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.

### 3 Reference

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

### 4 For the purposes of assessment:

- evidence for the practical components of this unit standard must be supplied from the workplace.

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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of the application of process safety in an energy and chemical plant.

#### Performance criteria

1.1 Describe the key elements of a process safety plan in terms of their contribution to the overall plan.

Range            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.

1.2 Describe the term ‘Loss of primary containment’ (LOPC) in terms of its use in process safety.

1.3 Identify and describe process hazards requiring control using process safety in terms of the process safety controls or barriers in place.

### Outcome 2

Demonstrate knowledge of the role of operations staff in process safety, and procedures to disable or override engineered safety devices and systems in an energy and chemical plant.

#### Performance criteria

2.1 Describe the role of operations staff in terms of process safety in accordance with organisational requirements.

- 2.2 Describe the procedures to disable and override engineered safety devices and systems at the plant in terms of the role of the operator in accordance with organisational requirements.

### Outcome 3

Identify the standard used for reporting process safety incidents and severity criteria, and review previous process safety incidents and actions taken in an energy and chemical plant.

#### Performance criteria

- 3.1 Identify the standard used in the organisation for the reporting of process safety incidents and describe severity criteria in terms of the tier of incident reported in accordance with organisational requirements.
- 3.2 Review previous plant related process safety incidents and identify plant events and the actions taken to prevent reoccurrence in accordance with organisational requirements.

Range evidence of two previous plant events is required.

<b>Planned review date</b>	31 December 2024
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#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	24 October 2014	31 December 2022
Review	2	27 February 2020	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0079
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

#### Comments on this unit standard

Please contact the Primary Industry Training Organisation [standards@primaryito.ac.nz](mailto:standards@primaryito.ac.nz) if you wish to suggest changes to the content of this unit standard.