

<b>Title</b>	<b>Monitor, analyse, and respond to process deviations in an energy and chemical plant</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>12</b>

<b>Purpose</b>	People credited with this unit standard are able to: maintain energy and chemical process conditions by monitoring and adjusting equipment and processes, and describe consequences of deviation from stable operating parameters; and describe, respond to, and restore process conditions in an energy and chemical plant.
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<b>Classification</b>	Energy and Chemical Plant > Monitoring of Energy and Chemical Plant
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 Legislation and regulations relevant to this unit standard include but are not limited to:
  - Health and Safety at Work Act 2015;
  - Health and Safety at Work (Hazardous Substances) Regulations 2017 (HSWA);
  - *Approved Code of Practice for the Design, Safe Operation, Maintenance and Servicing of Boilers*, Occupational Health and Safety Service, 2000;
  - Resource Management Act 1991; and any subsequent amendments.
  
- 2 Definitions
 

*Distributed control system* includes – Supervisory Control and Data Acquisition (SCADA), Man Machine Interfaces (MMI).

*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.
  
- 3 For the purposes of assessment:
  - evidence for the practical components of this unit standard must be supplied from the workplace.

- evidence for all outcomes must be presented in accordance with organisational requirements.
- the candidate must control a complex process that uses several systems and plant that has some complex equipment.

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## Outcomes and performance criteria

### Outcome 1

Maintain energy and chemical process conditions by monitoring and adjusting equipment and processes, and describe consequences of deviation from stable operating parameters.

#### Performance criteria

- 1.1 Obtain and record process data at scheduled times.
- Range may include – sampling, plant logs, product data, distributed control system.
- 1.2 Identify, monitor and, where required, adjust operating parameters for each process to ensure plant safety and product specifications are met.
- 1.3 Describe consequences of deviation from stable operating parameters in terms of effects on product, equipment, and production schedules.
- 1.4 Identify and analyse trends and adjust equipment and processes where necessary to maintain stable operating parameters.

### Outcome 2

Describe, respond to, and restore process conditions in an energy and chemical plant.

#### Performance criteria

- 2.1 Describe circumstances in which emergency shutdowns are automatically initiated.
- 2.2 Describe circumstances in which emergency shutdowns are manually initiated.
- 2.3 Report situations which cannot be remedied within the operator's authority to the appropriate personnel for escalation.
- 2.4 Take corrective actions in the event of a continuing deviation.
- 2.5 Restore stable process conditions without delay while minimising loss and without compromising safety.
- 2.6 Identify and diagnose any faults to determine causes.
- 2.7 Record and communicate problems and corrective actions to appropriate personnel.

<b>Replacement information</b>	This unit standard replaced unit standard 9593 and unit standard 9594.
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<b>Planned review date</b>	31 December 2025
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#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	24 January 2002	31 December 2018
Review	2	20 February 2009	31 December 2018
Rollover and Revision	3	20 April 2017	31 December 2022
Review	4	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.