Title	**Demonstrate knowledge of and operate control systems in an energy and chemical plant**		
Level	**4**	**Credits**	**15**

Purpose	This unit standard is intended for people working as boiler operators and energy and chemical plant process operators in an energy and chemical plant. People credited with this unit standard are able to demonstrate knowledge of a control system; and alarms and event management in an energy and chemical plant. They are also able to: operate control systems; and interpret process data in an energy and chemical plant.

Classification	Energy and Chemical Plant > Monitoring of Energy and Chemical Plant

Available grade	Achieved

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.

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

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of a control system used in an energy and chemical plant.

Performance criteria

1.1 Describe the terminology and abbreviations associated with a site control system in terms of their meanings.

Range may include but is not limited to – programmable logic controller (PLC), human machine interface (HMI), distributed control system (DCS), supervisory control and data acquisition (SCADA), operator login, input, output, analogue, digital; evidence of six is required.

1.2 Identify and describe control system records in terms of their use.

Range may include but is not limited to – graphics, trends, historical data, sequence of events log, alarm lists, operator log; evidence of three is required.

Outcome 2

Demonstrate knowledge of alarms and event management in an energy and chemical plant.

Performance criteria

2.1 Interpret alarm screens in terms of their implications.

Range may include but is not limited to – active, new, acknowledged, suppressed, reset; evidence of three is required.

2.2 Identify alarms in terms of priorities.

Range may include but is not limited to – hierarchy of alarms, advisory, warning, high, critical, shutdown, alarm inhibits and/or overrides; evidence of three is required.

2.3 Describe alarms in terms of their consequences, and subsequent actions required in terms of manufacturer's recommendations.

Outcome 3

Operate control systems in an energy and chemical plant.

Performance criteria

3.1 Carry out navigation around screens in accordance with organisational requirements.

Range may include but is not limited to – overview, dropdown menus, ‘quick’ buttons, short cuts, toolbar navigation;
evidence of two is required.

3.2 Verify current plant status in accordance with organisational requirements.

3.3 Identify and describe controller modes to ensure the effective control of the process in accordance with organisational requirements.

Range may include but is not limited to – auto, manual, cascade, remote, local, ratio, on/off, enable/disable, inhibit;
evidence of four is required.

3.4 Demonstrate control system adjustments in accordance with organisational requirements.

Range may include but is not limited to – set points, controller limits, outputs, control modes;
evidence of two is required

3.5 Operate and monitor plant sequences in accordance with organisational requirements.

Range may include but is not limited to – automatic plant sequence, sequence tracking, auto/manual plant start/stop, plant changeover, overrides;
evidence of three is required.

Outcome 4

Interpret process data in an energy and chemical plant.

Performance criteria

4.1 Access and interpret data to assist with problem solving, and optimisation or planning in accordance with organisational requirements.

Range may include but is not limited to – current trends, historical trends, reports, logic diagrams, operator logs, sequence of events logs;
evidence two is required.

4.2 Describe the steps to be taken in a process investigation in accordance with organisational requirements.

Replacement information	This unit standard replaced unit standard 28158. This unit standard was replaced by skill standard 40361.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 February 2020	31 December 2026
Review	2	30 January 2025	31 December 2026

Consent and Moderation Requirements (CMR) reference	0079

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.