

## 40361 Operate control systems in an energy and chemical plant

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| <b>Kaupae   Level</b>     | 4  |
| <b>Whiwhinga   Credit</b> | 15   |
| <b>Whāinga   Purpose</b>  | <p>This skill standard is intended for people working as boiler operators and energy and chemical plant process operators in an energy and chemical plant.</p> <p>People credited with this skill standard are able to: describe alarms and event management; operate control systems; and interpret process data in an energy and chemical plant.</p> <p>This skill standard can be used in the New Zealand Energy and Chemical qualifications at Levels 4 and above.</p> |

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

| <b>Hua o te ako   Learning outcomes</b>                                  | <b>Paearu aromatawai   Assessment criteria</b>   |
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| 1. Describe alarms and event management in an energy and chemical plant. | a. Interpret alarm screens in terms of their implications.   |
|  | b. Identify alarms in terms of priorities.   |
|  | c. Describe alarms in terms of their consequences, and subsequent actions required in terms of manufacturer's recommendations. |
| 2. Operate control systems in an energy and chemical plant.              | a. Carry out navigation around screens in accordance with organisational requirements.   |
|  | b. Verify current plant status in accordance with organisational requirements.   |
|  | c. Describe controller modes to ensure the effective control of the process in accordance with organisational requirements.    |
|  | d. Demonstrate control system adjustments in accordance with organisational requirements.                                      |
|  | e. Operate and monitor plant sequences in accordance with organisational requirements.   |

| Hua o te ako   Learning outcomes                           | Paearu aromatawai   Assessment criteria   |
|--|---|
| 3. Interpret process data in an energy and chemical plant. | a. Access and interpret data to assist with problem solving, and optimisation or planning in accordance with organisational requirements. |
|  | b. Describe the steps to be taken in a process investigation 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 three (3) is required. These may include – active, new, acknowledged, suppressed, reset.
- 1b: evidence of three (3) is required. These may include – hierarchy of alarms, advisory, warning, high, critical, shutdown, alarm inhibits and/or overrides.
- 2a: evidence of two (2) is required. These may include – overview, dropdown menus, ‘quick’ buttons, short cuts, toolbar navigation.
- 2c: evidence of four (4) is required. These may include – auto, manual, cascade, remote, local, ratio, on/off, enable/disable, inhibit.
- 2d: evidence of two (2) is required. These may include – set points, controller limits, outputs, control modes
- 2e: evidence of three (3) is required. These may include – automatic plant sequence, sequence tracking, auto/manual plant start/stop, plant changeover, overrides.
- 3a: evidence of two (2) is required. These may include – current trends, historical trends, graphics, reports, logic diagrams, alarm lists, operator logs, sequence of events logs.

#### 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

- Control system terminology and meanings, such as – programmable logic controller (PLC), human machine interface (HMI), distributed control system (DCS), supervisory control and data acquisition (SCADA), operator login, input, output, analogue, digital.

**Rauemi | Resources**

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.

**Pārongo Whakaū Kouna | Quality assurance information**

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| <b>Ngā rōpū whakatau-paerewa  </b><br>Standard Setting Body                                | Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council |
| <b>Whakaritenga Rārangi Paetae Aromatawai  </b><br>DASS classification                     | Manufacturing > Energy and Chemical Plant > Monitoring of Energy and Chemical Plant  |
| <b>Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga  </b><br>CMR | 0079   |

| <b>Hātepe  </b> Process                                 | <b>Putanga  </b><br>Version                       | <b>Rā whakaputa  </b><br>Review Date | <b>Rā whakamutunga mō te aromatawai  </b> Last date for assessment |
|---|---|--------------------------------------|--|
| <b>Rēhitatanga  </b> Registration                       | 1   | 30 January 2025                      | N/A  |
| <b>Kōrero whakakapinga  </b><br>Replacement information | This skill standard replaced unit standard 32030. |                                      |  |
| <b>Rā arotake  </b><br>Planned review date              | 31 December 2029                                  |                                      |  |

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council at [qualifications@hangaarorau.nz](mailto:qualifications@hangaarorau.nz) to suggest changes to the content of this skill standard.