

Title	Describe and operate valves in an energy and chemical plant		
Level	4	Credits	7

Purpose	<p>This unit standard is intended for people working as boiler operators and process operators in an energy and chemical plant.</p> <p>People credited with this unit standard are able to: describe valves used in the energy and chemical industry and prevention of problems from incorrect valve operation, describe valve security; and operate valves, in an energy and chemical plant.</p>
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Classification	Energy and Chemical Plant > Operation of Energy and Chemical Plant
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Available grade	Achieved
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Guidance Information

- 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.
- 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.
- 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

Describe valves used in the energy and chemical industry, and prevention of problems from incorrect valve operation.

Performance criteria

- 1.1 Describe valves in terms of the process uses, design concepts and method of operation.

Range valves include but are not limited to – gate, globe, needle, butterfly, ball, safety, non-return, relief, plug, parallel slide, diaphragm.

- 1.2 Describe the components of types of valves in terms of their function.

Range valves include but are not limited to – gate, globe, needle, butterfly, ball, safety, non-return, relief, plug, parallel slide, diaphragm;
components may include but are not limited to – body, flanges, stem, seal, bonnet, gaskets, packing.

- 1.3 Describe materials used in valve construction in terms of process conditions and product compatibility.

Range materials include but are not limited to – carbon steel, stainless steel, alloy steels, plastics, teflon, ceramic, non-ferrous metals.

- 1.4 Describe the prevention of any problems arising from incorrect valve operation in terms of organisational requirements.

Range problems include but are not limited to – fluid hammer, icing, cavitation, hydraulic wedging, wire drawing.

- 1.5 Describe methods of valve actuation in terms of their application.

Range methods include but are not limited to – manual, pneumatic, hydraulic, electrical.

- 1.6 Describe methods of determining valve position in terms of their application.

Range evidence of at least three methods is required.

Outcome 2

Describe valve security in an energy and chemical plant.

Performance criteria

- 2.1 Describe site specific valve security procedures in terms of organisational requirements.

Range valve security procedures include but are not limited to – operations lock, lock wire, security seals.

Outcome 3

Operate valves in an energy and chemical plant.

Range evidence of at least four types of valves is required.

Performance criteria

- 3.1 Use safe work practices when operating valves in accordance with organisational requirements.
- 3.2 Identify the location of valves in accordance with the site-specific identification coding system in accordance with organisational requirements.
- 3.3 Use methods of valve operation which are suitable for valve type and application in accordance with organisational requirements.
- 3.4 Carry out plant checks on valves in accordance with organisational requirements.
- 3.5 Complete all plant documentation related to the process and valve operation in accordance with organisational requirements.

Replacement information	This unit standard was replaced by skill standard 40449.
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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	8 November 1995	31 December 2014
Revision	2	15 December 1998	31 December 2014
Review	3	29 May 2000	31 December 2014
Revision	4	24 July 2002	31 December 2014
Review	5	27 June 2005	31 December 2014
Rollover and Revision	6	25 July 2006	31 December 2014
Review	7	22 May 2009	31 December 2016
Review	8	24 October 2014	31 December 2022
Review	9	27 February 2020	31 December 2026
Review	10	24 April 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>.