

<b>Title</b>	<b>Demonstrate knowledge of and manage product storage and transfer facilities in an energy and chemical plant</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>6</b>

<b>Purpose</b>	People credited with this unit standard are able to demonstrate knowledge of energy and chemical plant storage facilities and associated equipment; manage energy and chemical plant product storage and transfer facilities and monitor conditions and products; and document and communicate product storage and transfer facility details in an energy and chemical plant.
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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

- Legislation relevant to this unit standard includes but is not limited to:
  - Health and Safety at Work Act 2015;
  - Health and Safety at Work (Hazardous Substances) Regulations 2017 (HSWA);
  - 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.

*Hazchem data* – the *Hazchem* emergency action code of numbers, letters and diamonds that give information to emergency services. Its use is required by the NZS 5433 PARTS 1 & 2:2012 *Transport of dangerous goods on land*.  
<https://www.nzta.govt.nz/driver-licences/getting-a-licence/licences-by-vehicle-type/transporting-dangerous-or-hazardous-goods/dangerous-goods-carried-by-transport-operators/>.

*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.

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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of energy and chemical plant storage facilities and associated equipment.

#### Performance criteria

1.1 Describe site storage facilities for the management of energy and chemical plant products in terms of their functions.

Range pressure vessels, floating roof tanks, fixed roof tanks, bins, bullets, pressure relief valves, vacuum breaker valves, other valves, manifolds, pumps, lines, bund, tank compounds, drains, heating equipment, refrigeration equipment, mixers, spheres, vent systems, tank blanketing systems, sampling equipment, instrumentation, leak detection systems.

1.2 Describe energy and chemical plant blending and transfer systems in terms of their functions.

Range computerised blending controllers, in line mixers, lines, pumps, flow control equipment.

1.3 Describe energy and chemical plant product additive systems in terms of their functions.

Range injection pumps, heaters, computerised additive injection controllers, weigh scales, tanks, drums, meters, valves, sample points.

1.4 Identify and describe the products and additives stored and transferred within the site in terms of the potential hazards.

Range may include – high vapour pressure, flammability, temperature, toxicity, phase, viscosity, density, corrosiveness, contamination, simultaneous operations.

1.5 Locate and interpret documentation for controlling the hazards of stored products and additives.

Range safety data sheets, Hazchem data, product specifications, site emergency response procedure.

- 1.6 Describe energy and chemical plant product and storage fire and safety protection equipment in terms of their operation.

Range signage, barriers, fire extinguishers, hoses, fire monitors, fire hydrants, foam systems, fire water main, fire alarms, fire detector, gas detectors, inert gas systems, deluge systems, water sprays, personal protective equipment, breathing apparatus, emergency shutdown systems, pressure protection systems, spill kit, bunding.

## Outcome 2

Manage energy and chemical plant product storage and transfer facilities and monitor conditions and products.

### Performance criteria

- 2.1 Carry out routine checks and log keeping duties.

Range may include – equipment operation and integrity, pumps, tanks, housekeeping, checklists, standing instructions, safety systems.

- 2.2 Carry out routine sampling and testing of contents.

- 2.3 Maintain product specifications.

Range temperature, pressure, level, chemical composition, moisture, specific gravity, Reid Vapour Pressure (RVP).

- 2.4 Dip tanks to measure and determine capacities.

Range capacity, verification of remote indicating systems, loss control, custody transfer, stock taking, ullage charts, strapping tables.

- 2.5 Liaise with control room prior to the product transfer commencing to ensure safety interlocks have been employed and the product is ready for transfer.

- 2.6 Identify any rectify variations from normal operating conditions in terms of the steps to remedy.

Range contamination, off specification product handling, leaks, spills, unscheduled transfers, operator error, returns.

## Outcome 3

Document and communicate product storage and transfer facility details in an energy and chemical plant.

**Performance criteria**

3.1 Complete documentation.

Range may include – logs, laboratory analyses, test results, blend sheets, safety data sheet, computer records.

3.2 Communicate product storage and transfer details to appropriate personnel.

<b>Replacement information</b>	This unit standard was replaced by skill standard 40459.
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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	6 February 1997	31 December 2018
Revision	2	3 August 2000	31 December 2018
Review	3	24 January 2002	31 December 2018
Review	4	20 February 2009	31 December 2018
Rollover and Revision	5	20 April 2017	31 December 2022
Review	6	27 February 2020	31 December 2026
Review	7	24 April 2025	31 December 2026

<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>.