

<b>Title</b>	<b>Demonstrate advanced knowledge of coal quality assurance</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>15</b>

<b>Purpose</b>	People credited with this unit standard are able to: explain the causes and consequences of variations in coal quality; demonstrate knowledge of coal quality sampling; demonstrate knowledge of the impact of variations in coal quality on coal utilisation; and demonstrate knowledge of coal quality assurance.
----------------	---

<b>Classification</b>	Extractive Industries > Extractive Industries Management
-----------------------	--

<b>Available grade</b>	Achieved
------------------------	----------

### Guidance Information

None.

### Outcomes and performance criteria

#### Outcome 1

Explain the causes and consequences of variation in coal quality.

#### Performance criteria

- 1.1 The explanation outlines the geological causes of variations in coal quality.
- Range indicators of coal quality include – peat to coal, coal basins, petrography, influences on coal rank, ash, ash chemistry, moisture, sulphur, coking properties.
- 1.2 The benefits of predicting and modelling variations in coal quality are explained.
- Range techniques of predicting coal quality variation in the exploration phase, utilisation of these models during mine planning.
- 1.3 The impact of variations in coal quality on mining, handling, and transportation is explained.
- Range dilution, excessive moisture, housekeeping, segregation, size degradation in processing and handling.

**Outcome 2**

Demonstrate knowledge of coal quality sampling.

**Performance criteria**

- 2.1 Sampling theory is explained in terms of geostatistics and variograms.
- 2.2 Types of coal quality sampling are identified and their applications are explained.
- Range sampling methods include – channel, drill, geophysical, sampling stockpiles.
- 2.3 The process of arranging laboratory testing of samples is explained in terms of the type of laboratory used, sample turn around period, and form of analysis.

**Outcome 3**

Demonstrate knowledge of the impact of variations in coal quality on coal utilisation.

**Performance criteria**

- 3.1 The impact of variations in coal quality on utilisation of thermal coal is explained.
- Range industrial boilers, electric power generation, cement manufacture.
- 3.2 The impact of variations in coal quality on utilisation of coking coal and coal for steel making is explained.
- Range blast furnaces, electric arc furnaces.
- 3.3 The impact of variations in coal quality on utilisation of specialist coals is explained.
- Range anode carbon, activated carbon, carbon fibre, silicon metal manufacture.

**Outcome 4**

Demonstrate knowledge of coal quality assurance.

**Performance criteria**

- 4.1 Ensuring mining is carried out to a specified mine plan is explained in terms of coal quality assurance.
- Range mining blocks, extraction horizon, coal processing, scheduling, following instructions.
- 4.2 Notification and separation of contaminated coal are explained in terms of coal quality assurance.

- 4.3 Stockpiling and blending, and dispatch to customers are explained in terms of coal quality assurance.

---

**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	24 February 2003	31 December 2019
Review	2	23 April 2007	31 December 2027
Rollover	3	25 January 2018	31 December 2027
Review	4	27 November 2025	31 December 2027

**Consent and Moderation Requirements (CMR) reference**

0114

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