

Title	Demonstrate advanced knowledge of coal quality assurance		
Level	5	Credits	15

Purpose	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.
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Classification	Extractive Industries > Extractive Industries Management
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Available grade	Achieved
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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.

Planned review date	31 December 2022
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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	N/A
Rollover	3	25 January 2018	N/A

Consent and Moderation Requirements (CMR) reference	0114
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact MITO New Zealand Incorporated info@mito.org.nz if you wish to suggest changes to the content of this unit standard.