

<b>Title</b>	<b>Demonstrate knowledge of development and extraction plant and methods for underground coal mining</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>15</b>

<b>Purpose</b>	People credited with this unit standard are able to demonstrate knowledge of: development plant and equipment; development methods; extraction plant and equipment; and extraction methods used in underground coal mines.
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<b>Classification</b>	Extractive Industries > Underground Extraction
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<b>Available grade</b>	Achieved
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<b>Prerequisites</b>	Unit 7146, <i>Demonstrate basic knowledge and ability required to work in an underground operation</i> , or demonstrate equivalent knowledge and skills.
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## Guidance Information

- Performance of the outcomes of this unit standard must comply with the following:  
Health and Safety at Work Act 2015 (HSW);  
Health and Safety at Work (General Risk and Workplace Management) Regulations 2016;  
Health and Safety at Work (Worker Engagement, Participation, and Representation) Regulations 2016;  
Health and Safety at Work (Mining Operations and Quarrying Operations) Regulations 2016;  
Health and Safety at Work (Hazardous Substances) Regulations 2017 and related Safe Work Instruments (SWIs) published by WorkSafe NZ;  
approved codes of practice issued pursuant to the HSW Act;  
Hazardous Substances and New Organisms Act 1996.
- The Environmental Protection Authority (EPA) is responsible for assessing and approving hazardous substances and, where appropriate, setting controls on the way the substance is used. Any questions relating to the provisions for hazardous substances should be directed to [EPA New Zealand](http://www.epa.govt.nz).
- Definition**  
*Industry best practice* refers to those practices, which competent practitioners within the industry recognise as current industry best practice. These may be documented in management plans, company procedures or requirements, managers' rules, occupational health and safety policy, industry guidelines, codes of practice, manufacturers' instructions, safe working and/or job procedures (or equivalent).

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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of development plant and equipment used in underground coal mines.

#### Performance criteria

1.1 The components and operation of development working face plant and equipment are described in accordance with manufacturer's instructions.

Range equipment for – blasting and loading out; plant – coal cutters, load haul dump (LHD) machines, rocker shovels and other air-powered loaders, roadheaders, continuous miners, hydromonitors, haulage systems, shuttle cars, continuous haulage, diesel haulers, face conveyors, flumeways.

1.2 The safety and protection features of development working face plant and equipment are described in accordance with the HSW Act and regulations, and industry best practice.

Range pre-start and operating checks, gas monitoring, interlocks, isolation and lockout procedures, emergency stops, guards, protection canopy, dust suppression, fire control, operator positioning, face team safety.

### Outcome 2

Demonstrate knowledge of development methods used in underground coal mines.

#### Performance criteria

2.1 The methods of working development places are described in accordance with industry best practice.

Range blasting (shotfiring), roadheader cutting, continuous miner cutting, hydromonitor cutting, multiple headings, multi-place changing, single entry, main headings, section headings, panel development.

2.2 The hazards and remedial measures associated with development work in underground coal mines are identified and described in accordance with the HSW Act and regulations, and industry best practice.

### Outcome 3

Demonstrate knowledge of extraction plant and equipment used in underground coal mines.

**Performance criteria**

3.1 The components and operation of extraction plant and equipment are described in accordance with manufacturer's instructions.

Range equipment for – drilling, shotfiring, hand loading, and mechanical loading;  
plant – LHD machines, roadheaders, continuous miners, conventional hydraulic systems, hydromonitors, long wall and short wall, extraction place transportation methods.

3.2 The safety and protection features of extraction plant and equipment are described in accordance with the HSW Act and regulations, and industry best practice.

**Outcome 4**

Demonstrate knowledge of extraction methods used in underground coal mines.

**Performance criteria**

4.1 The methods of working extraction places are described in accordance with industry best practice.

Range blasting techniques, pillar splitting and lifting, wongawilli and other panel extraction methods, hydromonitor extraction, hydro systems, long wall and short wall, sub-level caving, bottom caving, gallery methods, partial extraction and bottom coaling.

4.2 The hazards associated with extraction are identified and described in accordance with the HSW Act and regulations and industry best practice.

Range gas migration, gas accumulations, goaf heatings, dust, strata stability, water inflows, geological features, mobile machinery, cables, old workings, proximity to other places, ventilation failure.

<b>Planned review date</b>	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	27 June 2005	N/A
Rollover and Revision	2	19 March 2010	N/A
Rollover and Revision	3	25 January 2018	N/A

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

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**Comments on this unit standard**

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