



MANAGER CERTIFICATE OF COMPETENCE | JULY 2014

Examination for Certificate of Competence as a Manager of a Mine

MB1 Mining Legislation paper

Examination Date: 23 July 2014

Examination Times: 12pm to 1pm

Examination Venue: Hunter TAFE, Kurri Kurri and
Southern Mines Rescue Station, Woonona.

Instructions to candidates: All five (5) questions are to be attempted. All questions are of equal value - 20 marks each.

Question 1

Explain in your own words the meaning of Section 18 of the *Work Health and Safety Act 2011* - What is "reasonably practicable" in ensuring health and safety. (20 marks)

Question 2

What are the stone dusting requirements under CI 91 and CI 92 of the *Coal Mine Health and Safety Regulation 2006*? (20 marks)

Question 3

Explain the legislative requirements involved in applying for an exemption from a clause in the *Coal Mine Health and Safety Regulation 2006*, and how you would seek an exemption from the requirement to have less than 0.25% methane at the commencement of the Hazardous Zone in an underground coal mine. (20 marks)

Question 4

Explain in your words the requirements of (20 marks):

- a) CI 84 of the *Coal Mine Health and Safety Regulation 2006* - Working alone in the underground parts of an underground mine. (10 marks)
- b) CI 85 of the *Coal Mine Health and Safety Regulation 2006* - Working accompanied at a face in the underground parts of an underground mine. (10 marks)

Question 5

Outline the requirements of CI 80 of the *Coal Mine Health and Safety Regulation 2006* - Use of Conveyors in a Dusty Place. (20 marks)

END OF QUESTIONS

END OF PAPER

MB2 Mine Ventilation paper

Examination Date: 23 July 2014
Examination Times: 2pm to 5pm
Examination Venue: Hunter TAFE, Kurri Kurri and
Southern Mines Rescue Station, Woonona.

Instructions to candidates: BOTH questions are to be attempted. Answers are to be written in this booklet only. You have 10 minutes reading time prior to commencing the examination.

Mine Plan:

Last Stand Underground is a modern Longwall mine that produces 5.5 million tonnes R.O.M of semi soft and Thermal coal per annum in normal operation.

Normal production consists of:

- 1 x Longwall unit
- 2 x Development units

The mine extracts 3.4m seam section of the 4.6m – Eureka seam.

The Eureka seam has moderate in-situ methane (CH₄) content of 6.2m³/tonne with medium propensity to spontaneous combustion. The Eureka seam has been historically a wet seam with water-make a constant issue reporting to the mains and flooding roadways unless controlled.

LW 10 has commenced production all but slow due to strata issues from the adjacent structure.

MG11 backhole has been extremely slow due to the dykes/structure and greater than normal water – make.

MG12 is progressing well with no geological structures in the immediate area.

Dykes and associated structures have been identified in MG11 area via exploratory drilling and intersection by the continuous miner.

Question 1 (Worth a total of 100 Marks)

From the data supplied and a critical viewing of the plan:

- Identify and list all relevant issues and factors that you believe must be incorporated in, or be addressed by, the ventilation network you will adopt in the current workings as well as the your process for sealing LW9. (50 marks)
- Explain in detail how each of the issues you have identified will be managed in your ventilation network now and into the future. (50 marks)

Question 2 (Worth a total of 100 Marks)

On the accompanying “Last Stand Underground” plan:

- Show the location of all production faces, together with their daily production levels. (20 marks)
- Ventilate the plan using the code of signs specified by the regulations and standards or survey drafting instructions, addressing the issues identified in question 1. (20 marks)
- Show the air quantities entering each production panel measured 100 metres outbye the last completed line of cut-throughs. Calculate the general body methane concentration in each panel return. (20 marks)
- Show the air quantities entering each surface intake entry into the underground workings and each surface return entry from the underground workings. (20 marks)
- Show locations and type of required atmospheric monitoring. (20 marks)

END OF QUESTIONS

END OF PAPER

MB3 Coal Mining Practice paper

Examination Date: 24 July 2014
 Examination Times: 9pm to 12pm
 Examination Venue: Hunter TAFE, Kurri Kurri and
 Southern Mines Rescue Station, Woonona.

Instructions to candidates: Five (5) questions ONLY are to be attempted for this paper. This paper is in TWO sections - A and B. Four (4) questions must be attempted from section A (questions 1 - 6). One (1) question only is to be attempted from section B (questions 7 - 8). ALL questions are of equal value – 20 marks each.

Section A – Underground

Question 1

You are the Mine Manager of an underground coal mine that is transitioning from a bord and pillar operation to a longwall operation, assume all approvals are in place.

- Outline the steps you would put in place to achieve a smooth transition (8 marks)
- How would you monitor the success of the steps you have put in place (6 marks)
- What controls would you have in place to manage the transition (6 marks)

Question 2

You are planning to drive two (2) drifts from a preformed box cut to access a valuable seam of coal 150 metres below the base of the Box Cut.

The seam is almost level and is 4.0 metres thick with a good working roof and floor.

The overlying strata from the seam to the base of the box cut comprises sandstone shale and mudstones with a maximum hardness of 125MPa.

- Detail the dimensions and grades of your proposed drifts, and outline why you have selected these dimensions and grades? (5 marks)
- Explain the method of driving you would employ, and why you have selected this method? (5 marks)
- List the equipment you would require to drive the drifts. (5 marks)
- What would be the advance rate you would expect when your system was fully commissioned? (5 marks)

Question 3

Blind Shaft Boring is a common method used to sink shafts.

- With the aid of sketches explain how the system works. (5 marks)
- Explain how the muck from the process is removed from the shaft. (5 marks)
- Explain how the side of the shaft is supported during the sinking process. (5 marks)
- Explain how the shaft is lined when sinking has reached its final depth. (5 marks)

Question 4

You are Mine Manager of a modern, successful longwall mine however, your next longwall block is in an area prone to spontaneous combustion. The longwall block has been developed in your new area with a two (2) heading maingate and a two (2) heading tailgate. There is additional development occurring for the next block which will be adjacent to the new block.

- Outline the system/s you would put in place to minimise the risk of a spontaneous combustion event occurring during longwall extraction of this new block. (5 marks)
- What controls would you have in place to monitor for signs of an impending spon comb event? (5 marks)
- How would you know if you had a spon comb event? (5 marks)
- How would you control a spon comb event if an event occurred? (5 marks)

Question 5

You are Mine Manager of an underground coal mine with rail transport system in place, the normal seam section is 3.0 metres high giving adequate room for rail transport, however in an outbye section of the main headings some floor heave has occurred which has reduced the height to minimum transport levels of 2.1 metres for just over 200 metres. You as Mine Manager have decided to increase the height to a minimum of 3.0 metres again. The main headings in question are of four (4) heading configuration, with pillar centres of 50m by 30m, and looking inbye from left to right there is the main conveyor heading, the rail transport road then two return headings.

The immediate roof is competent sandstone which is well supported, ribs have been meshed and bolted, and the floor consists of mudstone and shale.

There is a longwall and three (3) development units all inbye of the proposed work site.

- Explain with the aid of sketches how you would carry out this work while still allowing the Mine to operate. (8 marks)
- What controls would you have in place for this work to proceed? (6 marks)
- List the equipment you would require to complete this task. (6 marks)

Question 6

You are planning to seal a longwall block. The block to be sealed is 250 metres wide and all equipment has been relocated to the adjacent block. The seal site have been selected, and are Longwall tailgate, Mid face pull off point and maingate, that is three (3) seals required which are evenly spaced (125m apart). When the seals are complete they will be in the returns from the mine.

- Explain the process you will go through to seal these roadways. (5 marks)
- Explain the sequence of sealing. (5 marks)
- List the controls you will put in place to seal the place safely. (5 marks)
- Explain how you will know that the sealing has been successful. (5 marks)

Section B – Open cut

Question 7

You are the Mine Manager of an expanding Open Cut Mine and are required to install and commission more productive equipment to maintain profitability during reducing coal prices.

Haul trucks which have a 30% higher load capacity and are 35% heavier than the existing fleet when loaded are to be utilised, these haul trucks are bigger in every dimension than the current fleet.

Larger and more productive excavators and shovels are also coming.

Explain:

- The process you would undertake to have these machines commissioned and fully utilised as soon as possible. (8 marks)
- What changes will be necessary to make at the Mine? (6 marks)
- How would you manage the transition from old equipment to the new equipment? (6 marks)

Question 8

You are the Mine Manager of an open cut mine and have just been notified of an event that has led to a D11 dozer being stranded at the top of a high wall. Part of the high wall had given way while the dozer was pushing material over the high wall. The dozer is at an inclination of 40 degrees, the operator has safely disembarked and the dozer has been shut down. The high wall is 30 metres high and is at 80 degrees.

- Explain with the aid of sketched how you would have the dozer safely recovered. (10 marks)
- List the controls you would have in place to safely manage this operation. (10 marks)

END OF QUESTIONS

END OF EXAM

More information

Business Processes & Authorisations

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Acknowledgments

Manager of a Mine Examination Panel

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