



Trade &
Investment
Mine Safety

(OCE1)

NSW Coal Competence Board

EXAMINATION FOR CERTIFICATE OF COMPETENCE AS OPEN CUT EXAMINER

(Coal Mine Health and Safety Act 2002)

Thursday 20 September 2012
9.30 am to 10.30 am

LEGISLATION

INSTRUCTION TO CANDIDATES

All questions are to be attempted.

Refer to the relevant legislative provisions when answering all questions:

Work Health and Safety Act 2011

Work Health and Safety Regulation 2011

Coal Mine Health and Safety Act 2002

Coal Mine Health and Safety Regulation 2006

Explosives Act 2003

Explosives Regulation 2005

Question 1

Broken Toe (Worth 25 Marks)

An employee at a small mine sustains a broken toe whilst loading a shot. As the Open Cut Examiner what are your obligations under the *Coal Mine Health and Safety Act 2002*, when you cannot contact the Manager of Mining Engineering?

Question 2

Fatigue (Worth 25 marks)

The Manager of Mining Engineering at a new mine site asks you, as Open Cut Examiner at the mine, to form a team and develop a fitness for work program for the mine. List who you involve, what information you need and what limits on working hours you set?

Question 3

Shot Firing (Worth 25 marks)

You are carrying out your inspection duties on a blast site being loaded and prepared for firing. What are your duties, as an Open Cut Examiner, and the shot firer's duties in this case?

Question 4

New Starters (Worth 25 marks)

As an Open cut Examiner at a mine, you are given the task of inducting a new group of employees to drive rear dump trucks on the mine site. What is required to allow these employees to be qualified to drive the trucks?

END OF QUESTIONS

END OF PAPER



**Trade &
Investment**
Mine Safety

(OCE2)

NSW Coal Competence Board

EXAMINATION FOR CERTIFICATE OF COMPETENCE AS OPEN CUT EXAMINER

(Coal Mine Health and Safety Act 2002)

Thursday 20 September 2012
11.30 am to 1.30 pm

PRACTICAL OPEN CUT OPERATION

INSTRUCTION TO CANDIDATES

Only four (4) of the six (6) questions are to be attempted

Questions 1 and 4 are compulsory

All questions are of equal value

Drawing tools may be used for sketches

Non-programmable calculators may be used

Question 1 (COMPULSORY) (Total of 50 marks)

A shovel operator has just reported that a misfire has been discovered while loading waste material from a 15 metre high bench which is being worked. The operator has reported by two way radio that there appears to be some ANFO about half way up the dig face.

As the only Open Cut Examiner on duty during the shift, what would you do after receiving this notification? There is no shot firer available on your shift and you are the senior mining official present.

- a) Explain in detail what you would do to safely deal with this misfire. (15 marks)
- b) Who and when would you report this event to? (10 marks)
- c) How would you lead an investigation into this incident? (10 marks)
- d) What recommendations would you recommend to prevent further misfires? (15 marks)

Question 2 (Total of 50 marks)

You are the Open Cut Examiner on duty at an open cut mine using a fleet of 240 tonne mechanical drive capacity trucks to haul overburden. The overburden is loaded by a 550 tonne hydraulic excavator and taken from the working face to a waste dump via the floor of a bench being worked, and then up a ramp designed at 10% grade. The trucks are changing down gears as they climb the ramp and a lot of spillage is being generated on the ramp when this occurs. The ramp has a number of flat spots and also has a number of areas which are steeper than the 10% design grade. There is also a lot of spillage along the bench before the ramp, and the truck drivers are continually attempting to avoid rocks while travelling across the bench and ramp.

A truck driver has called you to report that the truck has a damaged front tyre which is flat, and is located approximately mid way on the up side of the ramp; he has stopped the loaded truck and applied the park brake.

- a) What actions would you take immediately to ensure the truck and operator safety is managed effectively? (15 marks)
- b) What instructions would you issue to the maintenance team assigned to change the front wheel with the damaged tyre? (10 marks)
- c) What safety precautions are required when handling large tyre assemblies fitted to haul trucks? (10 marks)
- d) What other actions would you take to ensure the load and haul activities are continued in a safe and productive manner? (15 marks)

Question 3 (Total of 50 marks)

You have been asked by your manager to design and install a sump to collect water from seepage out of the spoils and rain events near the lowest point of the mine. The floor of the mine excavation is approximately 60 metres below surface level at the lowest point. The last coal is being mined from this area, and a diesel powered pump will be need to be installed to manage the water level to ensure the floor is kept dry for future access.

The water needs to be pumped to a large settling dam for storage, approx 1,000 metres from the sump location and the water will be used to refill water carts and coal processing.

- a) Your answer needs to include a diagram of a typical mine sump, and needs to include all of the safety features you would include in the design of any mine sump. (20 marks)
- b) Your diagram needs to include where the pump and discharge pipe will be located, and explain how these would be installed. (10 marks)
- c) What is the typical capacity (flow rate in litres/second) of a mine pump? (10 marks)
- d) What size pipe will be required to manage this flow rate? (10 marks)

Question 4 (COMPULSORY) (Total of 50 marks)

As the Open Cut Examiner on day shift at a small open cut operation you have been notified via 2-way radio that during the post blast inspection of a partings shot a contractor in a light vehicle has been discovered within the blast exclusion zone. The shot firer states that he is currently with the contractor who appears to be in shock but otherwise unharmed. The contractor vehicle has received superficial damage due to fly rock including a cracked windscreen, minor dents and scratches.

- a) Detail all of the actions you would take as the Open Cut Examiner for the shift. (15 marks)
- b) Outline the steps you would take as part of an investigation of this incident. (10 marks)
- c) What would be the key areas of focus (based on possible contributing factors) in your investigation? (10 marks)
- d) What controls would you ensure are put in place to minimise the risk of reoccurrence? (15 marks)

Question 5 (Total of 50 marks)

a) Define and then describe the purpose of the following; (20 marks)

- i) Risk Management
- ii) Hazard identification tool
- iii) Control measures
- iv) Residual risk
- v) Maximum reasonable consequence
- vi) BBRA
- vii) JSA
- viii) SWMS
- ix) MSDS
- x) Hierarchy of control

b)

- i) Draw a detailed diagram to illustrate the “Hierarchy of control”. (15 marks)
- ii) Describe how you would apply the hierarchy of controls in your role as an Open Cut Examiner. (15 marks)

Question 6 (Total of 50 marks)

You are an Open Cut Examiner at a small open cut mine that uses equipment including 2 x 500t backhoe excavators and a fleet of CAT 793 mechanical drive trucks. Your Mine Manager intends to trial the use of 4 re-built 240t electric drive rear dump trucks that have become available from within the business to assist with increasing trucking requirements due to longer waste hauls. The Manager has asked you to coordinate the safe introduction of the electric drive trucks into the existing fleet.

- a) Describe the steps in the process that you would use to introduce the trucks into production.(20 Marks)
- b) In a simple risk assessment table, list all of the activities, hazards and recommended controls to effectively manage those hazards associated with the introduction of the new electric drive trucks.(30 Marks)

END OF QUESTIONS

END OF PAPER