



**Trade &  
Investment**  
Mine Safety

**(OCM1)**

## **NSW Coal Competence Board**

### **EXAMINATION FOR CERTIFICATE OF COMPETENCE AS OPEN CUT MANAGER**

*(Coal Mine Health and Safety Act 2002)*

Thursday 15 August 2013  
9.30 am to 10.30 am

### **LEGISLATION**

#### **INSTRUCTION TO CANDIDATES**

All questions are to be attempted

Answers are to be written in this booklet **ONLY**

You may use the blank pages for additional space if required

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*

## Questions

### Question 1

You are the manager of a mine which wishes to establish a new tailings dam and then close the old tailings dam.

What is required under the legislation? (20 Marks)

### Question 2

A wooden power pole in the car park falls over in high winds and strikes the side of a vehicle a glancing blow.

a) Is this reportable and explain the reason for your decision? (10 Marks)

At the same time the pole falls over, 2 cars are approaching the entry to the mine site see it occur. The first driver stops whilst the 2<sup>nd</sup> driver continues at 5kph and strikes the first driver's car causing minimal damage.

b) Is this reportable and explain the reasons for your decision? (10 Marks)

### Question 3

a) What General Obligations are placed on the operator in relation to dealing with Health & Safety Representatives and are there any exceptions to these General Obligations? (10 Marks)

b) What does the Work Health and Safety Act 2011 state in relation to Codes of Practice? (10 Marks)

### Question 4

An inspector arrives at your mine unannounced and does not sign in at the front desk, what do you do? (20 Marks)

### Question 5

Your mine has just conducted elections for a new site check inspector.

a) What are you required to do as the operator's representative. (8 Marks)

The site check inspector wishes to carry out an inspection.

b) What is required before the Check Inspector can carry out the inspection? (8 Marks)

c) What are the functions of an Industry Check Inspector? (4 Marks)

**END QUESTIONS  
END PAPER**



(OCM2)

## NSW Coal Competence Board

### EXAMINATION FOR CERTIFICATE OF COMPETENCE AS OPEN CUT MANAGER

*(Coal Mine Health and Safety Act 2002)*

Thursday 15 August 2013  
11.30 am to 2.30 pm

### OPEN CUT MINING PRACTICE

#### INSTRUCTION TO CANDIDATES

Only five (5) of the eight (8) questions are to be attempted

**Questions 2 and 6 are compulsory**

All questions are of equal value; however parts of a question may vary

Answers are to be written in this booklet **ONLY**

You may use the blank pages for additional space if required

Drawing tools may be used for sketches

Non-programmable calculators may be used

# Questions

## **Q1 Inspection Program**

An inspection program is a legislative requirement under the Coal Mine Health and Safety Regulation 2006 and is key in delivering positive health and safety outcomes for coal mine operations.

- a) Your company is commencing a new mining operation and as the Manager of Mining Engineering you are required to develop an inspection program for the entire mine. Detail the key elements of the inspection program that you would develop for implementation, stating all assumptions as required. (40 marks)
- b) How would you ensure that the inspections were being undertaken and that action was being taken to remedy hazards and deviations from standards and procedures? (20 marks)

## **Q2 Drill & Blast (COMPULSORY)**

Your mine has been granted approval to extend the mine into a newly developed area. The deposit has 50 degree dips with multiple seams.

It has been suggested that Through Seam Blasting be utilised in this area using ANFO (density 0.85)

- a) Outline how you would implement Through Seam Blasting ( 15 marks)
- b) Devise a recommended load sheet for a blast hole assuming (30 marks);
  - blast hole diameter of 229mm
  - bench height to suit a 996 backhoe excavator
  - 2 coal seams in blast horizon; seam 1 = 1.5m in thickness, seam 2 = 3m in thickness
  - 2.5 metres of interburden between seam 1 and 2
  - Include typical stemming height, kg/m of explosives and total charge for the hole
- c) List the key desired outcomes for a successful Through Seam Blast (15 marks)

## **Q3 Incident Management & Review**

You have been appointed as the Manager of an open cut mine that employs 250 permanent employees and 300 contractors. The mine has recently experienced an alarming increase in recordable injuries.

The TRIFR in March was 5 increasing in April to 8 and then increasing further in June to 22. Between March and June there were 10 recordable injuries (6 maintenance and 4 mining related). 3 of the injuries will require a minimum of 4 months lost time each.

The recently trained site Health & Safety Representative (HSR) has suggested to the General Manager that the mine may need to be closed down for a period of time to address the current safety issues.

- a) What are the powers and functions of the site HSR? (10 marks)
- b) How is TRIFR calculated? (5 marks)
- c) Are any of the injuries reportable under CMH&S Act or Regulations? (5 marks)
- d) List 5 immediate actions in order of importance you would take to address the alarming injury trend? (10 marks)
- e) Detail a site 100 day plan to bring the sites TRIFR's back to less than 5. (30 marks)

#### **Q4 Change Management**

You are the Open Cut Manager for an existing open cut deposit. The open cut has extracted coal and overburden via hydraulic excavators. Changing geology has made it viable to introduce an electric rope shovel.

- a) List the advantages and disadvantages of an electric shovel over a hydraulic backhoe excavator. (15 marks)
- b) What are the chief hazards and operational challenges associated with this change and the controls you would put in place to manage them? (20marks)
- c) Describe in detail the process you would use to introduce this change to provide a safe, efficient and legally compliant outcome. (25marks)

#### **Q5 Incident Management**

You are the Manager of Mining Engineering for an open cut coal mine. Your OCE has informed you that there was a rollover of a small 20t digger whilst attempting to position a pump at a dewatering area. The excavator has rolled into a sump area, fully submerging the cab. An emergency has been called and all activities in the pit have been suspended. Immediate efforts to rescue the trapped excavator operator have not been successful.

- a) Describe in order of priority the immediate steps you would take in this situation with consideration given to the seriousness of the incident, potential impacts and legal requirements. (15 marks)
- b) Describe how you would go about recovering the body. (5 marks)
- c) Outline how you would investigate this incident (10 marks)
- d) What would be the most likely contributing factors? (10 marks)
- e) Outline in detail, what recommendations you would implement to prevent this incident recurring. (20 marks)

**Q6 Construction (COMPULSORY)**

To enable the mine plan to recover sterilised coal reserves, your open cut mine will need to relocate items of infrastructure including administration offices, maintenance workshop, fuel farm, wash down bay and service bay. You have a contractor assigned with the design and construct contract for the project.

- a) List the key steps in this process from the design phase to the commissioning phase (20 marks)
- b) Who would be responsible for the activities during construction? How does the legislation account for such activities on a mining lease? (20 marks)
- c) What are the highest risks for this project, how would you control them and how you would ensure that they were being adequately followed? (20 marks)

**Q7 Training and Competence**

- a) What is meant by the term "Order 34"? (5 marks)
- b) Outline the process you would use to develop a training scheme. (10 marks)
- c) What is the process for gaining approval of a training scheme? (10 marks)
- d) List the components of a Training and Competence Management Scheme and provide a summary of requirements under each of the components. (35 marks)

### **Q8 Highwall Mining**

As the MME of a small open cut mine you have been requested to introduce a highwall auger system to maximise the recovery of the mine's resource. The equipment to be used has recently become available from a neighbouring mine within your parent group which has completed its highwall mining program.

The seam to be mined is;

- 3m thick, of uniform coal quality and high coal strength
  - located on level ground at pit floor level with an accessible strike length of 300m
  - positioned beneath approximately 30m of sandstone overburden only in the area to be mined
  - the same seam mined as the neighbouring mine from where the equipment was sourced
- a) What are your legal obligations in relation to introducing highwall mining to the operation? (10 marks)
- b) What are the hazards associated with high wall auger mining and the controls required to manage those hazards? State all assumptions and use diagrams where required. (30 marks)
- c) Describe the process you would use to introduce and manage this mining method? (20 marks)

**END QUESTIONS**

**END PAPER**