



**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)

Friday 1 March 2013
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

Legislative Requirements (Worth 20 Marks)

You are the colliery holder that has 3 separate and distinct operations on its colliery holding.

- a) What are your legislative requirements? (10 Marks)
- b) What must you do if the operator of one of these operations is to finish up and another operator is to be appointed? (10 Marks)

Question 2

Highwall Mining (Worth 20 marks)

You are the Manager where your open cut mine has reached the limit of its life but it is proposed to mine further using highwall mining. What legally are you required to do to submit an application to carry out this further mining?

Question 3

Contractors (Worth 20 marks)

You are the Manager of a mine where there is an Exploration Licence over part of the area and you have just employed contract drillers to conduct drilling in this area.

- a) What are you required to do? (10 Marks)
- b) What do you do when during the first week of drilling you are notified that one of the driller's vehicles rolls away? (10 Marks)

Question 4

Provisional Improvement Notice (Worth 20 marks)

You are the Manager and a Provisional Improvement notice has been placed on your mine.

What are your legal requirements in relation to this notice?

Question 5

Fires (Worth 20 marks)

You are appointed as the operator of a mine that contains a washery. What is your responsibility in relation to fires?

END OF QUESTIONS

END OF PAPER



(OCM2)

NSW Coal Competence Board

EXAMINATION FOR CERTIFICATE OF COMPETENCE AS OPEN CUT MANAGER

(Coal Mine Health and Safety Act 2002)

Friday 1 March 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

Question 3 and 5 is compulsory

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

Drawing tools may be used for sketches

Non-programmable calculators may be used

Question 1 (Worth total of 60 Marks)

Excavator Shutdown

You are the Open Cut Manager for a small truck shovel operation working 10.5hour shifts, 6 days per week. One of the excavators is due for major shutdown taking 4 weeks to repair boom cracking, bucket repairs and undercarriage work. A majority of the work will be undertaken by contractors. As it is one of the high priority machines, the repair work will be undertaken 24hours a day, 7 days a week. Due to the small pit, the shutdown area will be adjacent a major haul road that takes waste and coal trucks.

- a) Identify the major hazards involved in this shutdown (15marks)
- b) Apart from hazards, what other issues might you need to consider? (10marks)
- c) Using the 10 Elements (or 10 Hurdles), describe how you would manage this scenario (35marks)

Question 2 (Worth total of 60 Marks)

Hot and Reactive Ground

You are an Open Cut Manager for a new open cut coal mine in the Upper Hunter Valley. The mine will have a quick ramp up period from 1Mtpa to 7Mtpa as a truck/shovel operation within 2 years. The exploration stratification logs indicate areas of pyrite banding and high sulphur content within or near coal seams. The company you work for does not own any other coal deposits and has no reactive/hot ground experience. In developing the mine's Health and Safety Management System (HSMS). You need to develop a process to manage spontaneous combustion. It was rumoured that an old underground mine existed on the lease back in the late 1800's, you were only able to find some sparse Underground Inspectors Reports for the area at that time, but no record tracings exist.

- a) Describe the mechanism of spontaneous combustion and reactive ground and how it occurs (10 marks)
- b) Describe the hazards associated with hot and/or reactive ground (10 marks)
- c) List what measures you would include to manage these hazards in your HSMS (25 marks)
- d) Describe the process of implementation through to system evaluation. (15marks)

Question 3 (Compulsory) (Worth total of 60 Marks)

Change Management

You are the Open Cut Manager for a large coal mine in the Upper Hunter Valley. The mine currently operates large trucks and shovels/excavators and mines 10 million tonnes per annum. The mine employs approximately 1,000 employees which consists of permanent and full time equivalents contractors.

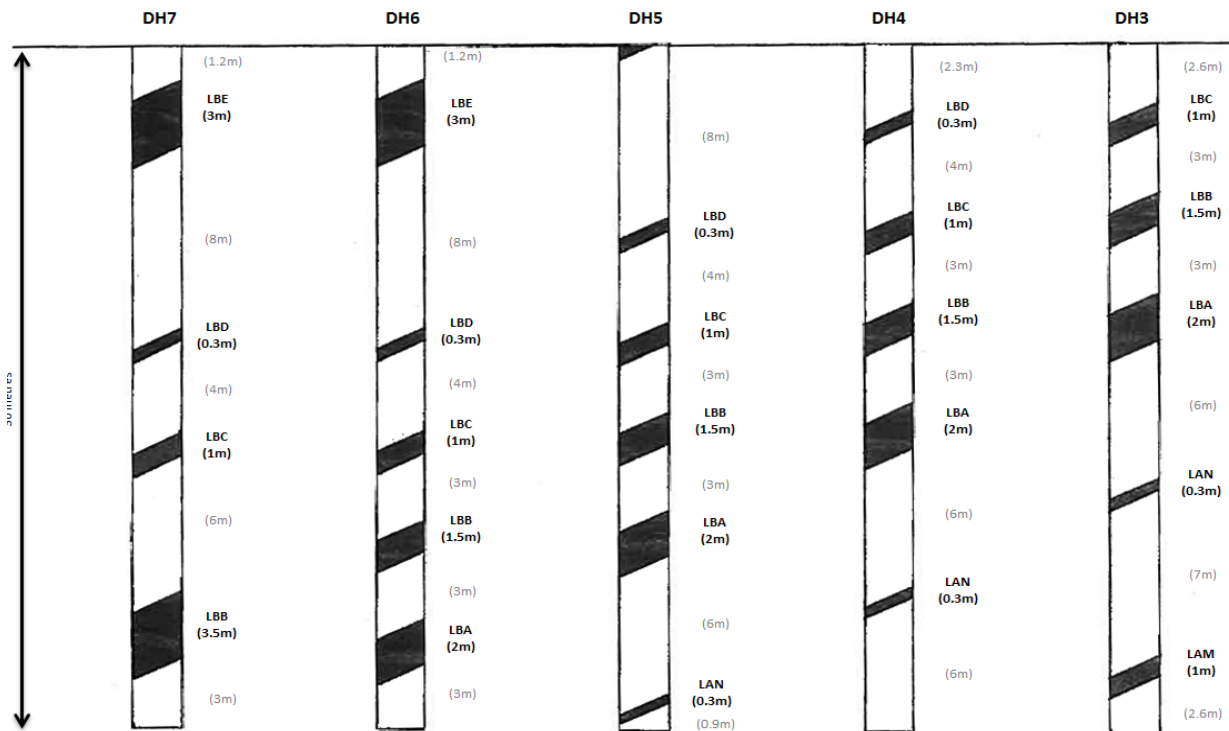
Due to the rising costs of mining and falling revenues in the commodities market, your mine has been directed to down size. This includes parking up 2 large digger fleets of your choice. Your General Manager has instructed you to provide him a complete plan of the downsizing.

- a) What issues would you need to address? (15marks)
- b) What tools or mechanisms would you use in implementing your plan? (15 marks)
- c) Describe the details of the plan to your General Manager (30 marks)

Question 4 (Worth total of 60 Marks)

Blast Design

Your mine has been granted approval to extend into a newly developed area. The deposit has 50 degree dips with multiple seams. (See attached drawing). It has been suggested that Through Seam Blasting be utilised in this area.



- Draw a typical load sheet for a blast hole assuming a blast hole diameter of 229mm and a bench height to suit a 996 backhoe excavator. (15 marks)
- What would be the effective blast hole timing using nonel or electronic detonators? (15 marks)
- List the key desired outcomes for a successful Through Seam Blast (15 marks)

Question 5 (Compulsory) (Worth total of 60 Marks)

Slope Stability

You are appointed as the Manager of Mining Engineering (MME). There have been three (3) reportable Highwall failures in the last two weeks which have resulted in equipment damage, safety risks, and production losses. Following these failures, your Project Manager has asked you to review the Slope Stability Management Plan (SSMP) at the mine.

- a) What are the key requirements for a SSMP? (10 marks)

It has been suggested that a Highwall TARP system be implemented for the mine.

- b) Who would be involved in the process? (10 marks)
- c) List key triggers for a Highwall TARP system. (20 marks)
- d) List escalation levels for each trigger identified. (20 Marks)

Question 6 (Worth total of 60 Marks)

Contractor Change Management

You are the MME of an open cut operation that uses large excavators, 240t rear dump trucks and associated ancillary equipment. The operation currently mines 7.5Mtpa ROM coal at a relatively constant ROM strip ratio of approximately 4:1. The operation has commenced the process of seeking approval to increase ROM production to 10Mtpa. Due to a group explosives supply contract being finalised by your Company, your site is required to change explosives suppliers to take effect in 10 months time. Current infrastructure owned by the existing supplier includes; bulk AN, emulsion and diesel storage, water and gasser solution storage facilities located within an existing reload compound and explosives magazines contained within a secured compound.

Describe in detail how you would effectively manage all health, safety, environmental and compliance aspects of this change to achieve a timely transition to the new explosives supplier to meet operational needs. State all assumptions. (60 marks)

Question 7 (Worth total of 60 Marks)

Blast Fume Management

You are the MME of a large open cut coal mine located in the Hunter Valley. The mine is in close proximity to rural residences and approximately 6km from a large township and you are becoming increasingly concerned as to the number of community complaints relating to blast fume. During a meeting with your Operations Manager to discuss these concerns you receive a call from the Drill and Blast Superintendent who advises you of an incident relating to a blast which occurred an hour ago. It appears that a local resident has been hospitalised due to alleged exposure to blast fume after an overburden blast generated a large reddish/brown plume which left site and travelled towards the local resident's property.

- a) What actions would you take upon being given notification of this incident? (15 marks)
- b) Describe the actions you would take to prevent reoccurrence of this type of incident and to minimise future occurrence of blast fume. (25 marks)
- c) Your Operations Manager has asked you to develop a Blast Fume Management Plan. Describe the contents of this plan. (20 marks)

Question 8 (Worth total of 60 Marks)

Coal Preparation & Community Impacts

You are the MME at a large open cut operation. You have been assigned by your General Manager to manage the CHPP and train load out facilities for the operation.

- a) Describe the process of achieving a satisfactory isolation of a CHPP for a planned shutdown. Include in your answer the management plans, procedures and permits you would use to complete this process. (15 marks)
- b) The CHPP Manager has just informed you that the lower cone section of the CHPP Surge Bin has failed above the vibratory feeders. A CHPP Operator was in the vicinity of the area when the cone section failed and he was covered in raw coal. The person sustained a fractured leg and was taken to hospital.
 - i) What immediate actions would you take? (10 marks)
 - ii) What actions would you take to prevent reoccurrence of this incident? (15 marks)
- c) There have been numerous community complaints relating to infrasound which is claimed to be coming from the CHPP.
 - i) What is infrasound? (5 marks)
 - ii) What effects can it have on humans? (5 marks)
 - iii) What would you consider to be the possible causes of infrasound in the CHPP and what would be your suggested controls to reduce it? (10 marks)

END OF QUESTIONS

END OF PAPER