

EXAMINATION PAPER

Mining engineering manager of coal mines other than underground mines certificate of competence

Written examination 5 June 2019

Instructions to candidates

Unless otherwise stated all references to the Act and Regulations are to the

- *Work Health and Safety Act 2011*
- Work Health and Safety Regulation 2017
- *Work Health and Safety (Mines and Petroleum Sites) Act 2013*
- Work Health and Safety (Mines and Petroleum Sites) Regulation 2014
- *Explosives Act 2003*
- Explosives Regulation 2013

OCM 1 – Mining legislation

Question 1

In regard to managing risk, detail the legislative requirements in relation to the following;

- What is meant by 'reasonably practical'? (6 marks)
- What is a duty holder? (4 marks)
- What must a duty holder do in relation to managing risks to health and safety? (4 marks)
- What must a duty holder do if risks to health and safety cannot be eliminated? (6 marks)

Question 2

At 10am, during your pit inspection with the shift open cut examiner, you hear a call over the two-way from a dozer operator reporting an incident in which he has reversed into a light vehicle while in the process of constructing a safe light vehicle park-up. There was no-one in the light vehicle at the time, as it had been parked there earlier by the dozer operator. The vehicle is extensively damaged.



- Summarise all the immediate and foreseeable legislative requirements you are required to comply with in relation to this incident. (20 marks)

Question 3

Following the incident that occurred in question 2, the NSW Resources Regulator has decided to issue an improvement notice under section 191 of the *Work Health and Safety Act 2011*.

- a) Under what circumstances would the inspector issue such a notice? (6 marks)
- b) What action is required following the issue of the notice? (6 marks)

The inspector has made a request for a copy of documents relating to the incident.

- c) What are the legislative requirements in regard to this request? (8 marks)

Question 4

List five roles that exercise a key statutory function at an open cut mine. Under each, detail the statutory function that is required to be performed by each role and what is required to be nominated to exercise the statutory function. (20 marks)

Question 5

As the mining engineering manager of a new greenfields open cut coal mine, you have been required to develop the principal hazard management plan (PHMP) relating to roads or other vehicle operating areas.

- a) Detail the matters that must be considered in developing the control measures to manage the risks of roads and other vehicle operation areas? (10 marks)
- b) Under what circumstances is the mine required to review this PHMP, under clause 10 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014? (10 marks)

OCM2 - Practical open cut operation

Written examination 5 June 2019

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- Work Health and Safety Regulation 2017
- *Work Health and Safety (Mines and Petroleum Sites) Act 2013*
- Work Health and Safety (Mines and Petroleum Sites) Regulation 2014
- *Explosives Act 2003*
- Explosives Regulation 2013

Question 1

You are the mining engineering manager of a large mine site consisting of large rope-face shovels, hydraulic excavators, front-end loaders and a dragline doing the bulk earthmoving activities.

There have been several incidents in recent years where highwalls have had major slope stability failures.

Most recently, you had an incident where the highwall failed and buried a hydraulic excavator beneath it, while the excavator was in operation. The excavator operator was able to escape from the cab with minor cuts and bruising.

- a) Was this most recent event a reportable incident and why? (5 marks)
- b) List the different types of major highwall failures and provide a brief explanation of each type. Diagrams may be used. (15 marks)
- c) List 10 ground conditions that could increase the risk of a major highwall failure. (20 marks)
- d) List and explain 10 controls to reduce the risk of a major highwall failure. (20 marks)

Question 2

- a) Describe how you would manage the design, construction and commissioning of a flotation plant in a coal handling preparation plant (CHPP) to ensure key safety and business risks are controlled. (Note: a trial has been conducted and has proven that the installation is justified). Your task as manager of mining engineering is to describe what documents and activities you require before and during installation. (40 marks).
- b) With the use of a diagram, explain how froth floatation works. (20 marks).

Question 3

You are the mining engineering manager at an operation divided by a public road. You are required to relocate an electric shovel across this public road in accordance with the mine plan.

There is a 33kV power easement owned by Ausgrid that runs along this road.

The total walk distance is 2 kilometres.

- a) Who are the stakeholders you would engage? (10 marks)
- b) Describe the risks and how you would manage them. (15 marks)
- c) Describe how you would perform the relocation. (20 marks)
- d) During the relocation, the cable handler drives over a lip along the road and rolls over onto its side. How would you manage this incident? (15 marks)

Question 4

You are the mining engineering manager for a large open cut mine. It is 2am and you receive a call stating a dump truck has breached a windrow while hauling downhill loaded. It has rolled multiple times before coming to rest 50 metres below the ramp. The operator did not survive the incident.

- a) Describe what actions you will take over the next few hours. (30 marks).
- b) Describe how you would resume operations after your mine receives approval to restart operations? (30 marks)

Question 5

You are the mining manager of a tier one mining services contractor at a large open cut mine where you run a fleet of six 350-tonne to 800-tonne backhoe excavators and a fleet of CAT 793 mechanical drive trucks and ancillary equipment.

The principal (client) has requested a 600-tonne hydraulic face shovel of the same make of the existing excavators with 52,000 SMU hours be dry hired to assist in the removal of overburden after a machine fire destroyed one of your 600-tonne excavators.

You have been tasked with the project of introducing the hydraulic face shovel configured machine into your fleet for a 12-month period awaiting the replacement of your fire-damaged 600-tonne excavator.

a) Outline how you would plan this task and the process you would follow to achieve the project scope. (20 marks)

b) List in detail the activities to be undertaken by :

- who (will do what)?
- hazards and activities identified
- controls required to manage the risk (health and safety, productivity, efficiency and costs).

(30 marks)

c) What controls or processes are required to verify the effectiveness of the introduction of the hydraulic face shovel to meet the needs of the operation and of the principal? (10 marks)

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