# Mining engineering manager of coal mines other than underground coal mines

Examiners' report June 2017

## Written examination

### Mining engineering manager of coal mines other than underground mines

#### Summary of overall written examination results

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|---|---|
| Exam date: | 2 June 2017 |
| Number of candidates: | OCM1 13, OCM2 14 |
| Number who passed: | OCM1 8, OCM2 10 |
| Highest mark: | 79% |
| Average mark: | 67% |
| Lowest mark: | 49.5% |

## OCM1 – Mining legislation

All five (5) questions are to be attempted.

| | |
|---|---|
| Highest mark: | 75% |
| Average mark: | 61% |
| Lowest mark: | 46% |

**OCM1 Overall Examiners Comments**

The paper required candidates to demonstrate their knowledge and understanding of the relevant legislation when applied to practical Open Cut Mining scenarios. Preparation in developing the base knowledge and understanding of legislation and the application of basic management tools e.g. Plan, do, check, act gave candidates the opportunity to perform strongly in this paper.

## Question 1 (total of 20 marks)

Highest mark: 18/20

Average mark: 12/20

Lowest mark: 6/20

**Examiner's comments**

This question required a practical approach for engaging a contractor for a high-risk activity. The use of Plan, do, check, act model, where applied, gave candidates a good framework to base their responses to the question to ensure all aspects were covered and relevant legislation was referenced.

## Question 2 (total 20 marks)

Highest mark: 20/20

Average mark: 12/20

Lowest mark: 10/20

**Examiner's comments**

Generally, most candidates were familiar with the notices found in various areas of the legislation. An understanding of the legislation and the growing level of awareness in regard to notices and the regulatory approach in regard to these was reflected in good responses to this question.

## Question 3 (total 20 marks)

Highest mark: 18/20

Average mark: 12/20

Lowest mark: 10/20

**Examiner's comments**

This question deals with an incident situation which prospective Mining Engineering Managers will need to ensure is dealt with effectively and thoroughly. Thoroughness was lacking by a number of candidates which goes well beyond the immediate incident including reporting, record keeping and review.

## Question 4 (total 20 marks)

Highest mark: 16/20

Average mark: 13.5/20

Lowest mark: 11/20

**Examiner's comments**

This question was adequately covered by most candidates in particular part (b).

## Question 5 (total 20 marks)

Highest mark: 14/20

Average mark: 10.5/20

Lowest mark: 4/20

**Examiner's comments**

This question required a practical approach for engaging a contractor for a high-risk activity. The use of Plan, do, check, act model, where applied, gave candidates a good framework to base their responses to the question to ensure all aspects were covered and relevant legislation was referenced.

# OCM2 – Open cut mining practice

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

Questions 5 and 6 are compulsory.

All questions are of equal value of 60 marks, however parts of question may vary.

Highest mark: 84.5%

Average mark: 69%

Lowest mark: 46%

### OCM2 Overall Examiners Comments

Overall, the responses to the 2017 OCM2 Practical paper was of an above-average standard. Candidates were able to apply systems to practical mining applications. Legislative knowledge was also above average. Typically, responses to questions could have been improved with more focus on monitoring of controls and/or changes and a review of control effectiveness.

## Question 1 Slope stability (total 60 marks)

Highest mark: 50/60

Average mark: 43.5/60

Lowest mark: 40/60

**Examiner's comments**

This question examined the candidates' knowledge of geotechnical hazards in an open cut application. Candidates were required to describe the systems used to ensure the risk of pumping activity is controlled to monitor and prevent unsafe events from occurring. Candidates also had to prescribe a Trigger Action Response Plan to control activities being undertaken in the high-risk areas.

Overall, candidates provided responses of high standard.

## Question 2 Explosives management (total 60 marks)

Highest mark: 55/60

Average mark: 48.5/60

Lowest mark: 41/60

**Examiner's comments**

This question tested the candidate' knowledge of new technology used in blast hole loading applications. Candidates were expected to have knowledge infrastructure requirements, change management process and monitoring of the effectiveness. Candidates who scored highly were able to outline a practical implementation of the system involving relevant stakeholders and monitoring systems to determine the effectiveness of the new system.

Overall, candidates provided a high standard of responses.

## Question 3 Risk management (total 60 marks)

Highest mark: 54/60

Average mark: 40/60

Lowest mark: 30/60

**Examiner's comments**

This question tested the candidates' knowledge on risk management and required candidates to describe their understanding of standard terms such as hazard and risk. It examined the candidates' knowledge of what key risk assessment processes should be in place in the overall system. Candidates who scored highly were able to clearly define terms, key personnel that would be included in a review as well as an in depth understanding of different risk assessment techniques.

## Question 4 Rope shovel incident (total 60 marks)

Highest mark: 54/60

Average mark: 39/60

Lowest mark: 20/60

**Examiner's comments**

This question tested the candidates' knowledge on incident response, investigation requirements and an understanding of reporting requirements post incident. Candidates who scored highly were able to clearly describe what information they need to enable a timely response, what their immediate actions were including making the area safe and preserving the scene, whether it was a reportable event and a clear description of an incident investigation process with a list of possible causes that would need to be investigated.

Overall, candidates provided above-average responses.

## Question 5 Surface transport (total 60 marks)

Highest mark: 53/60

Average mark: 42.5/60

Lowest mark: 24/60

**Examiner's comments**

This question tested the candidates' knowledge on high potential incident response. It required the candidates to have a working knowledge of the legislation relating to surface transport. Candidates' were asked to describe how they would evaluate different methods of traffic control and how they would then implement a transition to a different system. They were also asked how they would validate if the change was successful.

Overall, candidates provided above-average responses.

## Question 6 Surface transport (total 60 marks)

Highest mark 55/60

Average mark: 39.5/60

Lowest mark: 27/60

**Examiner's comments**

This question tested the candidates' knowledge of underground workings as well as processes involved in determining and controlling the risks. Candidates who scored highly could adequately manage the risk of underground workings. They needed to be able to systematically address the hazards with controls, as well as develop those controls into an Emergency Management Plan. Candidates were also required to tie in the change management with relevant mining legislation including notifying the regulator of a material change to PHMP.

Overall, candidates provided above-average responses.

## Question 7 Spontaneous combustion (total 60 marks)

Highest mark 49/60

Average mark: 33/60

Lowest mark: 22/60

**Examiner's comments**

This question tested the candidates' knowledge of spontaneous combustion, its causes and controls. A scenario was put forward where a worker becomes ill from the effects of spontaneous combustion fumes and tested the candidates' response to the situation. Candidates who marked highly were able to have a systematic approach to identifying the hazards and controls and developing those into changes into the site's management plans. They were also able to appropriately manage the worker who was affected by fumes generated by spon com and correctly identify that it was reportable under WHS (M&P) Reg Cl178(c).

Overall, candidates provided average responses.

## Question 8 Spontaneous combustion (total 60 marks)

Highest mark 52/60

Average mark: 48.5/60

Lowest mark: 45/60

**Examiner's comments**

This question tested the candidates' ability to project manage the significant changes involved in implementing an underground operations into an existing open cut. Candidates who scored highly had a systematic approach in the change management, as well as identifying the major hazards involved in the change. Responses needed to contain specific detail in what hazards a new underground would pose to an open cut operation. Candidates were also required to identify the legal clauses in mining legislation that impacts this change.

Of the few candidates who attempted the question, the responses were of a high standard.

## Summary of overall oral examination results

Post oral exam date: 3 March 2017

Number of candidates: 5

Number deemed competent: 2

Oral exam date: 11 August 2017

Number of candidates: 8

Number deemed competent: 4

**Examiners Comments**

Strong candidates who sat the exam showed a fair amount of preparation for the exams, with some candidates dedicating a lot of time in practical applications. Where candidates were observed to have difficulty was with applying the legislation in a practical situation. Some candidates had poor understanding of mining legislation. Candidates should identify their weaknesses and focus energy into fine tuning those areas prior to sitting the exam.



CM9 reference: PUB17/818