

April 2023

## **Examiners' report**

# Mechanical engineering manager of underground coal mines certificate of competence

Examiners' report 2022 – 2023

## **Written examination**

### **CME1 – Mechanical engineering applicable to underground coal mines**

#### **Summary of results and general comments**

Exam date: 3 August 2022

Number of candidates: 2

Number who passed: 2

Highest mark: 78.5%

Average mark: 74.8%

Lowest mark: 71%

#### **Question 1 (total of 20 marks) Incident Scenario (essential elements)**

Highest mark: 18

Average mark: 17.5

Lowest mark: 17

Examiners' comments:

The vehicle collision scenario included essential elements regarding the immediate management of the incident scene and was generally answered well by candidates.

#### **Question 2 (total of 20 marks) Conveyor**

Highest mark: 19

Average mark: 18.5

Lowest mark: 18

Examiners' comments:

Question was generally well understood by candidates.

#### **Question 3 (total of 20 marks) Multiple choice questions**

Highest mark: 16

Average mark: 15

Lowest mark: 14

Examiners' comments:

Questions were answered satisfactorily, however, candidates had some difficulty with standards for antistatic properties, fluid pressure, and LPG bulk storage.

#### **Question 4 (total of 20 marks) Hydraulic**

Highest mark: 19

Average mark: 18

Lowest mark: 17

Examiners' comments:

Question was generally well understood by candidates.

#### **Question 5 (total of 20 marks) Structural**

Highest mark: 14

Average mark: 13.5

Lowest mark: 13

Examiners' comments:

Question was answered satisfactorily, except for prioritising actions, and identifying actions to eliminate hazards.

#### **Question 6 (total of 20 marks) Hot work**

Highest mark: 16

Average mark: 14.5

Lowest mark: 13

Examiners' comments:

Question was generally well understood by candidates.

#### **Question 7 (total of 20 marks) Winders**

Highest mark: 18

Average mark: 15

Lowest mark: 12

Examiners' comments:

Question was answered satisfactorily, however, candidates had some difficulty with factors of safety.

#### **Question 8 (total of 20 marks) Energy**

Highest mark: 17

Average mark: 13

Lowest mark: 9

Examiners' comments:

Question was answered satisfactorily, however, candidates had some difficulty with identifying how energies can be effectively isolated.

#### **Question 9 (total of 20 marks) Critical System (essential elements)**

Highest mark: 12

Average mark: 11.5

Lowest mark: 11

Examiners' comments:

Safety critical systems included essential elements regarding the primary safety critical systems and was answered satisfactorily. However, candidates had some difficulty with identifying controls to minimise the potential for incidents involving the failure of safety critical systems.

### **Question 10 (total of 20 marks) Technical statements and standards**

Highest mark: 13

Average mark: 13

Lowest mark: 13

Examiners' comments:

Question was answered satisfactorily, however, candidates had some difficulty with identifying specific Australian standards

## **CME2 – Legislation and Australian Standards applicable to underground coal mines**

### **Summary of results and general comments**

Exam date: 3 August 2022

Number of candidates: 2

Number who passed: 1

Highest mark: 67%

Average mark: 59.5%

Lowest mark: 52%

### **Question 1 (total of 20 marks) MEM MECP (essential question)**

Highest mark: 16

Average mark: 13.5

Lowest mark: 11

Examiners' comments:

Question 1 was an essential question requiring detailed knowledge of legislation pertaining to the role of the mechanical engineer and the mechanical engineering control plan. Unfortunately, half of candidates who had sat the paper did not have sufficient knowledge of the mechanical engineering control plan and was deemed not yet competent for the exam.

### **Question 2 (total of 20 marks) Reclaim**

Highest mark: 13

Average mark: 11.5

Lowest mark: 10

Examiners' comments:

Question was answered below average by candidates indicating difficulty with FRAS requirements and standards, as well as controls for dozer cabin engulfment.

### **Question 3 (total of 20 marks) Winders**

Highest mark: 15

Average mark: 14

Lowest mark: 13

Examiners' comments:

Question was generally answered well by candidates

### **Question 4 (total of 20 marks) Confined Space**

Highest mark: 12

Average mark: 10.5

Lowest mark: 9

Examiners' comments:

Question was answered below average by candidates indicating difficulty with the definition, and terms relating to the management of gasses

### **Question 5 (total of 20 marks) Missing word**

Highest mark: 13

Average mark: 11

Lowest mark: 9.5

Examiners' comments:

Question was answered below average by candidates indicating difficulty with the Objects of the Act

### **Question 6 (total of 20 marks) Safety Bulletin**

Highest mark: 16

Average mark: 15.5

Lowest mark: 15

Examiners' comments:

Question was generally answered well by candidates.

### **Question 7 (total of 20 marks) Consultation**

Highest mark: 3

Average mark: 2

Lowest mark: 1

Examiners' comments:

Question was answered very poorly by candidates, indicating very little knowledge of the requirements and nature of consultation, as well as when it is required.

### **Question 8 (total of 20 marks) Notifiable**

Highest mark: 19

Average mark: 18.5

Lowest mark: 18

Examiners' comments:

Question was generally answered well by candidates.

### **Question 9 (total of 20 marks) Framework**

Highest mark: 11

Average mark: 7

Lowest mark: 3

Examiners' comments:

Question was answered poorly, indicating little knowledge of the relationship between Acts, Regulations, Codes of Practice, and Australian Standards.

### **Question 10 (total of 20 marks) Exhaust**

Highest mark: 18

Average mark: 15.5

Lowest mark: 13

Examiners' comments:

Question was answered okay, however, candidates had some difficulty with identifying sampling frequency requirements in Clause 75.

## **Oral examination**

Date: 5 – 6 October 2022

Number of candidates: 4

Number deemed competent: 2

Examiners' comments:

Successful candidates drew on practical experience and understanding to safely resolve the scenarios in the same way they would on site.

Unsuccessful candidates:

- did not sufficiently examine the incident scene to identify potential contributing factors, or systematically determine the root causes of the incident
- had a poor grasp of the process required to reintroduce equipment into service

## **Post Oral examination**

Date: 23 March 2023

Number of candidates: 2

Number deemed competent: 0

Examiners' comments:

The questions centred around incident management, failure investigation, stockpiles and reclaim tunnels, and introduction to site.

Candidates:

- failed to manage workers, did not systematically gather data, lacked clarity on what to notify, and failed to determine the root cause of the incident

- did not adequately demonstrate management of the investigation scenario, and required too much prompting to identify issues
- lacked a systematic approach to, and understanding of, control requirements to manage hazards associated with the introduction of equipment

## More information

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## Acknowledgments

Mechanical Engineering Manager of underground coal mines examination panel

© State of New South Wales through Regional NSW 2023. The information contained in this publication is based on knowledge and understanding at the time of writing March 2023. However, because of advances in knowledge, users are reminded of the need to ensure that the information upon which they rely is up to date and to check the currency of the information with the appropriate officer of the Regional NSW or the user's independent adviser.

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