

February 2024 – November 2024

# Undermanager of underground coal mines certificate of competence

## Examiners' report 2024

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### Written examination

#### Mine ventilation

##### Summary of results and general comments

Exam date: 5 March 2024

Number of candidates: 24

Number who passed: 10

Highest mark: 143.5

Average mark: 108.4

Lowest mark: 57

##### Question 1 (total of 100 marks) (1c and 1f essential questions)

Highest mark: 78

Average mark: 62.6

Lowest mark: 17

Examiners' comments:

This exam format has been established for several years. Candidates who generally pass the ventilation exam can demonstrate a logical thought process, evidence of preparations i.e. having completed multiple ventilation plans in the lead up to the exam and are clear in their assumptions, along with explanations in response to questions. The questions have not changed significantly in this time; however, examiners continue to see similar mistakes made by candidates which are listed below:

**General:**

- Not including a legend on the mine plan
- Having a ventilation efficiency of 80% on a mine plan that is **significantly restricted** due to poor mine design. Candidates must demonstrate how they will

address these issues, and not simply accept the mine plan for what it is. Again, it is no accident the mine plan is designed to be challenging.

- 17 of 24 candidates achieved 9 marks or greater for detailing the minimum ventilation required for production to occur, along with supporting activities of diesel machinery in a production area.
- 19 of 24 candidates achieved 9 or more marks for the legislated atmospheric monitoring locations, along with supporting information relating to these monitors. This is a significant increase from the 2023 exam where only 25% of candidates could demonstrate this knowledge.

## Question 2 (total of 70 marks) essential question

Highest mark: 50

Average mark: 35.5

Lowest mark: 17

Examiners' comments:

11 of 24 candidates met or exceeded the minimum pass mark of 60% in this question, as this was an essential question. In last year's exam, 17 of 20 candidates achieved marks less than 60% in this question. Therefore it is pleasing for the exam panel to see a noticeable increase in the candidates who achieved a higher result in the 2024 exam.

13 of 24 candidates achieved <60% in this question. Candidates need to understand that this question is worth 70 marks, which equates to 35% of the **overall** ventilation exam mark. To achieve the minimum marks in this question, candidates were required to identify hazards associated with the mine plan, and detail appropriate controls.

## Question 3 (total of 30 marks)

Highest mark: 30

Average mark: 10.3

Lowest mark: 0

Examiners' comments:

This question related to gas calculations of several scenarios. Several candidates did not attempt this question, suggesting the candidates hadn't adequately prepared for it. 18 of 24 candidates achieved <60% in this area.

## Legislation and coal mining practice

### Summary of results and general comments

Exam date: 5 Mar 2024

Number of candidates: 22

Number who passed: 13

Highest mark: 84

Average mark: 59.9

Lowest mark: 36

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

Highest mark: 17

Average mark: 12.8

Lowest mark: 8

Examiners' comments:

11 of 21 candidates achieved >60% of the overall available marks.

4 of 19 candidates did not achieve 60% of available marks for the essential component of this question relating to notifiable incidents.

Most candidates understood process to apply for the HRA and basic requirements for consultation and notification. Many candidates failing to identify that the Industry Safety Health Representative (ISHR) needs to be notified in the same manner as the Regulator.

The essential question was written to verify candidates understood the process to take when a notifiable incident occurred that exposed workers to serious risk from the rib failure. Some candidates did not preserve scene, did not notify through to mine management or notify the ISHR. An Undermanager plays a significant and integral role in the initial response on a mine site to any notifiable incident that has occurred.

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

Highest mark: 17

Average mark: 13.1

Lowest mark: 9

Examiners' comments:

15 of 21 candidates achieved >60% of available marks.

Most candidates could articulate key controls for the Inrush Principal Hazard Management Plan. Part 2 and 3 of the question specifically called out the practical aspects on shift of "what do you expect to see as an Undermanager". Many candidates lost marks as they opted for high level statements of requirements as opposed to key controls that should have been in place. This would have demonstrated both the underground practical knowledge / experience of controls in industry and also the requirements of water hazard management.

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

Highest mark: 15

Average mark: 11.3

Lowest mark: 7

Examiners' comments:

5 of 21 candidates achieved >60% of available marks.

This question was answered poorly across majority of candidates. Technical knowledge of strata mechanics and elevated geotechnical risk is fundamental for an Undermanager. Many candidates did not mention expected rib, floor and tailgate corner conditions, only focusing primarily on roof support and expected roof conditions. Their response to support design was based around what they do at their mine as opposed to what is needed to control the stress notch in the question provided. Many candidates did not cover off on practical controls for additional inspections, audits, and monitoring throughout this area.

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

Highest mark: 17

Average mark: 11.6

Lowest mark: 5

Examiners' comments:

6 of 21 candidates achieved >60% of available marks.

Most candidates lost marks as they could not demonstrate practical knowledge of shotfiring plans and the shotfiring processes. A surprising number of candidates did not mention stonedusting requirements and gas regime which are key controls for use of explosives in a coal mine. A number of shot plans had detonator delay sequencing and interburden distances that would have desensitised other detonators and could have caused further hazards such as a misfire.

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

Highest mark: 18

Average mark: 11.6

Lowest mark: 5

Examiners' comments:

8 of 21 candidates achieved >60% of available marks.

General lack of understanding of how an ISHR can issue a notice to suspend mining operations. Part 2 of the question was targeted at demonstrating the practical application of an investigation led by an Undermanager. Some candidates did not read the question and only answered part of the question. Other candidates covered high level statements without demonstrating a number of controls required to be in place to perform safe lifting practices.

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## **Oral examination**

Date: 28 May 2024

Number of candidates: 10

Number deemed competent: 2

Examiners' comments:

The candidates that passed demonstrated that they had a sound knowledge of 'general mining', while taking charge of the situation. The candidates that were deemed NYC were giving 'broad' answers, not specific and required a lot of prompting.

Candidates that passed demonstrated structured approach to managing an emergency situation and co-ordinate re-entry process in a controlled manner, with consideration to the hazards that may exist following an emergency withdrawal.

When managing issues during a shift, an undermanager should adopt a logical approach to identify the root cause of the problem. They must also understand their role in facilitating the review of control measures as an immediate priority.

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## Post oral examination

Date: 12 November 2024

Number of candidates: 9

Number deemed competent: 3

Examiners' comments:

As per the oral examination comments, however the following is of particular importance to those candidates who were deemed not yet competent in the post oral.

Candidates are reminded that a structured approach should remain flexible, allowing them to adapt to new information as it becomes available. When presented with information, consider its context and implications carefully. For instance, if a sensor provides a reading, there is no need to hastily pinpoint the 'fringe' or act in a way that could place workers at risk.

## More information

NSW Resources

Resources Regulator

Mining Competence Team

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## Acknowledgements

Undermanager of underground coal mines certificate of competence examination panel.

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