EXAMINATION REPORT | CERTIFICATE OF COMPETENCE

Undermanager of underground coal mines

Summary of results and general comments

Written Examination

Examination Date:	7 October 2016
Number who passed:	5 out of 22
Highest overall mark obtained	89%
Average overall mark:	60.1%
Lowest overall mark:	28.5%

UB1 – Mining legislation

Highest mark obtained:	65.5%
Average mark:	48.5%
Lowest mark:	28.5%

Comments

Question 1:

In general, this question was answered very poorly. In many cases, candidates appeared to be providing information from other clauses in respect of the Industry Safety and Health Representative (ISHR).

Some candidates correctly identified ISHR functions with respect to:

- review of content and implementation of Safety Management Systems,
- participation in investigations of events, occurrences or notifiable incidents, and
- the inspection of mines.

However, very few candidates identified ISHR functions with respect to:

- role covering workers at all coal mines,
- assistance in training site Safety and Health Representatives,
- notice requirements for inspections, and
- the accompanying of government officials on inspections.

Question 2

Key items to be identified;

- worker who suspects or believes there is an issue must report to supervisor and the supervisor must take reasonable steps to inspect the workplace
- a mining supervisor who suspects or believes there is an issue, must cause work to cease and withdraw affected persons and implement controls to prevent persons entering the affected area. In addition, they must take steps to control the risk.

- a mine operator who has been informed that the risk has not been eliminated, must ensure that such further control measures are implemented, as are reasonably practicable to control the risk.

An accessible place at an underground coal mine is taken to be a place of risk if:

- the percentage of methane in the general body of air in that place is found to be:
  - greater than 2% by volume, or
  - if explosion-protected, electrical plant, electrical equipment or internal combustion engines are in use in the place-1.25% by volume or greater, or
  - if electrical plant (other than explosion-protected plant) is present in the place-greater than 0.25% by volume, or
- ventilation to the place is below that which is required by the ventilation control plan, or
- the oxygen level <19.5%, or
- a dust level is exceeded (2.5mg/m3 respirable dust, 10mg/m3 inhalable), or
- an exposure level referred to in clause 55 (2) (b) is exceeded (contaminants as low as reasonably practical).

Question 3

Most candidates could identify incidents requiring reporting.

- Operator needs to notify regulator and the industry safety and health representative as soon as becoming aware of an incident if the incident results in illness or injury that requires medical treatment or is a high potential incident. Notification is required as soon as reasonably practicable after becoming aware of the incident, but no later than:
  a) 7 days after becoming aware of the incident, or
  b) 48 hours after becoming aware that the incident resulted in an illness or injury.
- The notification must be in writing, and be in a form required by the regulator.

Question 4:

Most candidates covered the requirements of the question with respect to:

- all principal hazards to be identified, and
- risk assessment of principal hazards (although few candidates commented on the need for comprehensive and systematic investigation and analysis of all aspects of risk).

Few candidates identified:

- investigation and analysis methods must be appropriate to the hazard being considered, and
- hazards to be considered individually and also cumulatively with other hazards.

UB2 – Mine ventilation

Highest mark obtained: 70%

Average mark: 55.5%

Lowest mark: 33%

Comments

- Candidates are encouraged to briefly explain why their assumptions are appropriate for the ventilation question. Reliance on "'rules of thumb' or generic assumptions without explanation, limits their ability to communicate their level of understanding.
- Question 1 was generally answered well, which indicates candidates are putting an appropriate amount of effort into preparation for this part of the paper. Fewer candidates achieved good results from answering Question 2. Most candidates ventilated the mine plan in a safe and reasonably efficient manner
- Unfortunately, many candidates provided limited information in their answers making it difficult to determine the level of knowledge. This is reflected on some candidates' marks.
- Once again Question 2 made reference to the management systems in place to manage risks associated with ventilating the attached mine plan. Candidates are encouraged to approach questions such as this from the perspective of what aspects will need to be included in the relevant management systems for this mine.
- The candidates who obtained good marks in the ventilation paper provided answers from the perspective of an undermanager, who could identify the potential hazards associated with the ventilation arrangements and provide specific measures to control the risks from those hazards. Answers need to reflect the hazards, risks and control measures relative to the mine plan and mine operation description provided in Question 1.
- Some candidates failed to recognise the hazard of airborne dust produced, specifically not discussing or addressing airborne dust produced cutting a stone intrusion in the coal seam. Considering the elevated awareness afforded the re-emergence of pneumoconiosis in the industry, there is an expectation that undermanager candidates are conversant with the control of the risks posed by this hazard.
- A number of candidates did not provide an answer for some or all of Question 2, this severely affected their ability to achieve a pass mark for the paper.
- A number of candidates provided answers for question 2 which did not reflect the question. Candidates are reminded to read the question carefully to ensure that they provide answers which reflect the mine plan and details provided in the question.
- With the current format of the ventilation paper being consistent with previous papers, candidates are reminded to provide explanation of ventilation principles in terms of identified hazards, potential risks and appropriate control measures being implemented.

UB3 – Coal mining practice

Highest mark obtained: 89%

Average mark: 76.5%

Lowest mark: 62.5%

Comments

- In general, the Coal Mining Practice exam was answered quite well. Most candidates used a management model process to address the questions, although depth of knowledge was not always well communicated. Candidates are reminded that their role is to manage the process which extends beyond technical knowledge.
- Question 1 – most candidates initiated and investigation into potential causes for poor dust results. Exposure levels were well understood and most candidates could outline key mitigation measure for dust management.
- Question 2 – candidates generally identified outburst indicators and methods for outburst management. Threshold values were quoted, although some candidates did not understand the implications on mining operations when the threshold is exceeded. Mining methods for high gas levels are primarily remote mining or grunching (shotfiring).
- Question 3 – answered well by most. Immediate management of the injury was generally identified and implementation of an incident investigation.
- Question 4 – many candidates answered this question adequately but there appears to be a general lack of in-depth knowledge on pillar extraction across the candidates.
- Question 5 – answered reasonably well by most candidates.
- Question 6 – in general most candidates had a working knowledge of the reasons for adopting different cutting methods. In the question regarding the face dyke, most candidates worked through a framework to deliver a system of work. Many candidates were able to outline procedural and “meeting” type controls but were unable to explore more technical investigations (e.g. coring of dyke for testing hardness to inform cutting or blasting).
- Question 7 – this question had a number of potential issues which most candidates were able to identify. The tailgate roadway can be subject to higher than normal geotechnical stress and limitations on access which were key factors to address when designing a system of work to avoid this re-occurring.
- Question 8 – This question outlined a fairly common scenario in pillar extraction relating to an existing geological condition and the variation process to the existing system of work. Double sided pillar extraction is still practiced in NSW and all candidates should have a reasonable understanding of the system, the typical hazards and controls that are involved and how this sits within the relevant legislative framework.

Oral examination

Examination Date: 23 November 2016

Number of candidates who sat: 8

Number of candidates deemed competent: 6

Comments

- Another pleasing success rate for the oral examination.
- The examiners wish to remind candidates to review their weaknesses from written exams and/or previous oral examinations and ensure they are fully across the detail before their oral examination. Examiners wish to see that an undermanager candidate would follow up on any weaknesses rather than just accept them.
- Candidates generally understood the legislated obligations with respect to notification of incidents when scenarios were put to them.
- Candidates generally demonstrated sound competency in subjects of frictional ignition, windblast, spontaneous combustion, legislation framework, and the use of explosives in coal mines.
- The need for benchmarking mines across the state has always been an important aspect of a candidate's preparation for their undermanager's exam. A candidate should approach the task of benchmarking from the perspective of identifying the major coal mining hazards and visiting those operations which provide an opportunity to learn how those hazards are managed.
- It is common for candidates to approach scenario questions in an oral exam from the perspective of a deputy or their normal role. Each answer provided needs to be from the perspective of an undermanager. By doing this the candidate can more readily demonstrate his/her knowledge, not only technical knowledge but also practical knowledge and his/her Associated Non-technical Skills.
- Candidates are occasionally presented scenarios outside of the underground environment, these questions provide the candidate an opportunity to present a structured, systematic approach to problem solving whilst demonstrating associated non-technical skills.
- Candidates are reminded that the undermanager's role is an operational role requiring a structured management approach which incorporates practical mining solutions and extensive use of non-technical skills. Guidance regarding Associated Non-Technical Skills (ANTS) for an undermanager can be found on the Mining Competence Team webpage.
- The importance of this holistic approach to the role cannot be overstated.

More information

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Acknowledgments

Undermanager Examination Panel

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