

Mechanical Engineer of coal mines other than underground

Examiners' report 2018

Oral examination

Date: 22 March 2018

Number of candidates: 2

Number deemed competent: 1

General comments

Candidates were questioned on a range of topics including:

- Incident management as a result of a falling object in a CHPP
- EWP working at heights requirements
- Earth moving tyres
- Statutory function of Mechanical Engineer
- Conveyor belts

In general candidates did not perform as well as expected on questions relating to the practical implementation of their experiences.

Written examination

CME3 – Safety and mining legislation applicable to open-cut mines

Summary of results and general comments

Exam Date	9 August 2018
Number of Candidates:	4
Number who passed:	2
Highest mark:	60.4%
Average mark:	55.2%
Lowest mark:	48%

General comments

Candidates were questioned on both legislation (open book), and mechanical practice (closed book). The legislation questions were marginally better answered than the mechanical practice, and significantly better than corresponding questions in the underground legislation exam.

In general candidates demonstrated an average working knowledge of mechanical plant and infrastructure, and the management systems associated with its maintenance and operation.

Question 1 (total 25 marks)

Highest mark	23
Average mark:	15.25
Lowest mark:	8

Examiners Comments

The first part required the candidate to use their practical experience at the mine to identify what systems the Mechanical Engineer has involvement in relating to the primary duty of care of workers. This starts with hazard identification and risk management, leading into the safety management system and MECP. It includes standards for purchasing, equipment, competency and introduction to site, right through to JSA, SWP, TBT, workplace inspections and housekeeping.

The second part required an understanding of how legislation is applied to the management of working at heights on site. This process begins with designing suitable walkways/stairs/ladders/platforms/etc to access areas requiring inspection and maintenance. Eliminating the hazard is at the core of lifecycle management. If this is impractical then it considers the management of alternate methods of temporary access.

Question 2 (total 25 marks)

Highest mark:	21
Average mark:	16.13
Lowest mark:	11

Examiners Comments

This question was answered best by candidates, with three of the four candidates scoring above 60% (15/25). However, every candidate received zero marks for at least one section of this question.

The question challenged the candidates practical understanding of the legislative obligations during incident and post incident management.

Question 3 (total 25 marks)

Highest mark	17
Average mark:	14.88
Lowest mark:	14

Examiners Comments

Tyre and rim management is a significant hazard at mine sites, and often undertaken by specialist contract companies. Mechanical Engineers need to understand the risks and ensure they are effectively mitigated.

Candidates demonstrated a reasonable understanding of this topic.

Question 4 (total 25 marks)

Highest mark:	14.5
Average mark:	10.5
Lowest mark:	6.5

Examiners Comments

Fluid power systems involving high pressure hydraulics are a significant hazard at mine sites, and basic knowledge of how they function is essential in developing effective management systems for the protection of workers.

Candidates lacked understanding of basic hydraulic systems and answers ranged from mediocre to poor.

Question 5 (total 25 marks)

Highest mark:	14.5
Average mark:	12.25
Lowest mark:	11

Examiners Comments

Dredges are being seen more frequently at mine sites, and the key risk issues are identified in the NSW Code of practice: Mechanical engineering control plan section 4.5.8.5. The question focussed on the identification of hazards and the implementation of effective controls. Candidates appeared to find it challenging to logically assess plant not routinely utilised at site, that is, using experience to think outside the box.

Oral examination

Date: 18 October 2018

Number of candidates: 2

Number deemed competent: 1

General comments

Candidates were questioned on a range of topics including:

- EWP working at heights requirements
- Incident management of head injury resulting from truck tailgate swinging shut
- Confined space
- Light vehicle brakes
- Conveyor belt

In general candidates performed satisfactorily where specific equipment knowledge was required. However, they did not perform as well on questions relating to the practical implementation of their knowledge or experiences.

More information

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Acknowledgments

Mechanical engineer examination panel.

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