

CANDIDATE NUMBER:	EVTNOT

(OCM1)

# MINING ENGINEERING MANAGER OF COAL MINES OTHER THAN UNDERGROUND MINES

# **EXAMINATION FOR CERTIFICATE OF COMPETENCE**

Legislation to be assessed:

Unless otherwise stated all references to Act and Regulations are to: Work Health and Safety Act 2011 Work Health and Safety Regulation 2017 Work Health and Safety (Mines and Petroleum Sites) Act 2013 Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 Explosives Act 2003 Explosives Regulation 2013

Examinations are held in the following regions:

**Tocal College** 

# 22 April 2021

## 9:20 am to 10:30 am

## **OCM1** Mining Legislation

## INSTRUCTIONS TO CANDIDATES

All questions are to be attempted Answers are to be written in pen in this booklet ONLY <u>Candidates must provide reference to all relevant legislation in their answers</u> Refer to the relevant legislative provisions when answering all questions:



Q	)#	Mark	Available mark	Marked by Initials	Summary comments to justify marks awarded (if required)
	a		6		
	b		6		
1	с		10		
	d		3		
	Total		25		
	a		3		
	b		3		
2	с		15		
	d		4		
	Total		25		
	а		8		
3	b		5		
5	с		12		
	Total		25		
	a		15		
4	b		10		
	Total		25		
PAPER	TOTAL		100		Marks checked by:

# ANSWER BOOKLET

Answers are to be written in the allocated spaces within this booklet ONLY

Answers must be written in pen however, drawings may be completed in pencil

This booklet is not to be altered in any way, pages are not to be added or removed

Additional space is provided at the end of the paper in case you run out of space for an answer.

Please label which question the answer relates to if you do use this additional space.

#### **Question 1 - Safety management System (Total 25 marks)**

The Work Health and Safety (Mines and Petroleum Sites) Regulation 2014, Part 2 Division 1 Subdivision 2 Clause 14 Sub clause (1) details the required content of a safety management system.

(a) What are the management structure requirements? (6 marks)

(b) What are the requirements in regard to control measures used to control risks associated with contractors? **(6 marks)** 

(c) What must a mine operator inform workers about in relation to the sites safety management system before a worker commences work at the mine? (**10 marks**)

		OCM1 – M	lining Legislat	ion – 2021		
(d) When must a	safety mana	gement sys	stem be rev	ewed? <b>(3 r</b>	narks)	
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## Question 2 - Contractor Management (Total 25 marks)

You are required to engage a contractor to establish a box cut in an area where future mining will take place.

(a) What is the mines duty in regard to providing information to the contractor? (3 marks)

(b) What information must the contractor provide to the mine? (3 marks)

(c) Summarise the requirements of the contractor in relation to preparing a plan or use of safety management system. **(15 marks)** 

	OCM1 – Mining Legislation – 2021
) The contracto	or has conducted a risk assessment for the excavation of the box cut. List
) The contractor three key legi assessment.	slative obligations the contractor must meet in regard to the risk
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# **Question 3 - Definitions and duties (Total 25 marks)**

(a) Define the legislative meaning of "mining operations" and "mining activities". (8 marks)

(b) In a couple of sentences, summarise the difference between a Person conducting a business or undertaking (PCBU) and an Officer. **(5 marks)** 

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(c) The Work Health and Safety (WHS) Act describes the specific duties of Officers. Summarise those duties. (12 marks)

## **Question 4 - Incident management (Total 25 marks)**

You are notified by the shift Open cut examiner (OCE) informing you that a rear dump haul truck has ventured onto the wrong side of the road, contacted the windrow and overturned onto its side. The operator of the truck has removed himself from the truck with minor bruising but appears to be otherwise unharmed.

(a) As the site Mining engineering manager (MEM), summarise all the immediate and foreseeable legislative requirements that are required to be complied with in relation to this incident. **(15 marks)** 

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(b) Where a person has a health and safety duty, the WHS Act describes three categories of offence. Briefly summarise each. <b>(10 marks)</b>

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# END OF QUESTIONS

OCM1 – Mining Legislation – 2021

END OF PAPER



(OCM2)

# MINING ENGINEERING MANAGER OF COAL MINES OTHER THAN UNDERGROUND MINES

# **EXAMINATION FOR CERTIFICATE OF COMPETENCE**

Legislation to be assessed:

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Examinations are held in the following regions:

**Tocal College** 

# 22 April 2021

# 11:35am to 2:45pm

# **OCM2** Practical Open Cut Operation

## INSTRUCTIONS TO CANDIDATES

All five (5) questions are to be attempted

All questions are of equal value – 60 marks; however, parts of a question may vary Answers are to be written in this booklet ONLY

Drawing tools may be used for sketches

Non-programmable calculators may be used

State all assumptions

			OCM2- Pract	ical Open Cut Op	peration - 2021
(	<b>)</b> #	Mark	Available mark	Marked by Initials	Summary comments to justify marks awarded (if required)
	a		15		
	b		20		
1	с		15		
	d		10		
	Total		60		
	а		10		
	b		10		
2	с		30		
	d		10		
	Total		60		
	а		10		
	b		20		
3	с		20		
	d		10		
	Total		60		
	a		20		
4	b		20		
4	с		20		
	Total		60		
5	a		15		
5	b		10		

			OCM2 – Pract	ical Open Cut O	peration – 2021
Q	)#	Mark	Available mark	Marked by Initials	Summary comments to justify marks awarded (if required)
	с		35		
	Total		60		
PAPER	TOTAL		300		Marks checked by:

OCM2 - Practical Open Cut Operation - 2021

# ANSWER BOOKLET

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additional space.

## **Question 1 - Contractor Management (Total 60 marks)**

You are the Mining Engineering Manager (MEM) of an open cut coal mining operation that has decided to employ the services of a Contractor to conduct all drill and blast operations at the mine.

The Contractor will provide the scheduled drilled and blasted stocks to meet the mine plan and supply all equipment, labour, maintenance and consumables as part of their service. Existing infrastructure such as explosive magazines, ammonium nitrate (AN) and ammonium nitrate emulsion (ANE) storage facilities, offices, toilets, crib rooms will be used by the contractor.

a) What factors would you consider in the selection process to assess the contractors work health and safety (WHS) standards? (15 marks)

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) List the specific requirements that should be completed before the Contractor is allowed to commence work. (20 marks)

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c) List the key safety management systems that the contractor will be working with. (15 marks)

d) What and how would you monitor the contractors performance during the contract period? (10 marks)

## **Question 2 - Change Management (Total 60 marks)**

You are the Mining Engineering Manager (MEM) of a large mine site consisting of large electric rope face shovels, hydraulic excavators, front-end loaders and a dragline. Drilling and blasting activities are carried out internally with a contractor supplying explosive products.

There have been several incidents in recent years where highwalls have had major slope stability failures. Investigation of these incidents has identified several faults, which were not considered or factored into the mine design, as major contributing factors to these slope stability failures.

The General Manager has tasked you with a project to implement soft wall blasting into the mine to assist in preventing similar types of incidents.

a) Briefly define what is "soft wall blasting" and list its potential benefits. (10 marks)

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b)	Outline how you would plan this task and the process you would follow to achieve the
	project scope. (10 marks)

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- c) Summarise the following;
  - Who will you involve and what purpose or function will they perform in the project?
  - The sequential activities identified.
  - The hazards associated with those activities.
  - The controls required to manage the risk (health and safety, productivity, efficiency and costs). (30 marks)



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d) Describe the verification activities and processes that are required to confirm the effective introduction of soft wall blasting? (10 marks)

## Question 3 - Tyre & Rim Management (Total 60 marks)

As the MEM, you are required to attend a review of the site tyre and rim standard, which is due for review.

a) List the process steps you would expect to be followed in the review and implementation of the tyre & rim standard (10 marks)

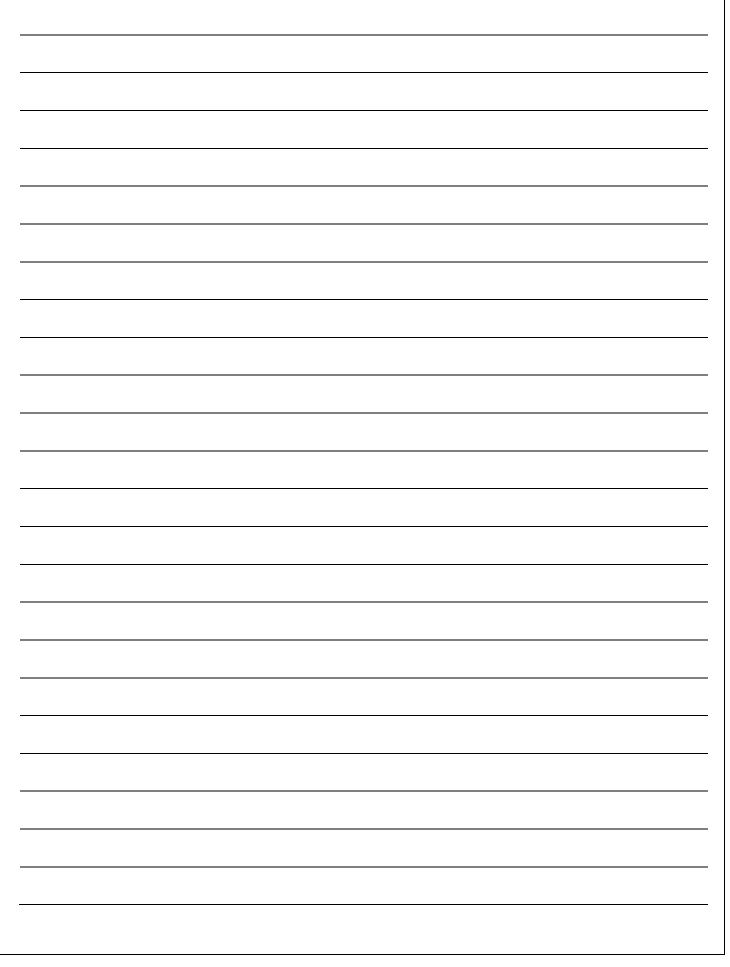
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b) Under the categories of People, Processes and Equipment, summarise the items that would need to be included in the standard and an example of the control measures that you would expect to see in place for each item. **(20 marks)** 

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c) A site initiative is to introduce N2 (nitrogen gas) in the tyres of all heavy mobile equipment at your site. Outline the process you would expect to be applied for the introduction of an N2 plant and its application to site? **(20 marks)** 



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d) List at least three advantages for the use of N2 (nitrogen gas) in heavy mobile equipment tyres. (10 marks)

#### **Question 4 - Incident Management and Contingency (total 60 marks)**

At approximately 3am in the morning, you are at home and receive a phone call from an extremely anxious step-up mining supervisor who informs you that an emergency is in progress involving a major fire on your P&H 4100 electric rope shovel. They also inform you that the only OCE on site is in the first aid room suffering from chest pains.

a) Summarise your step-by-step actions that you would take as the MEM when presented with this situation. State any assumptions. **(20 marks)** 

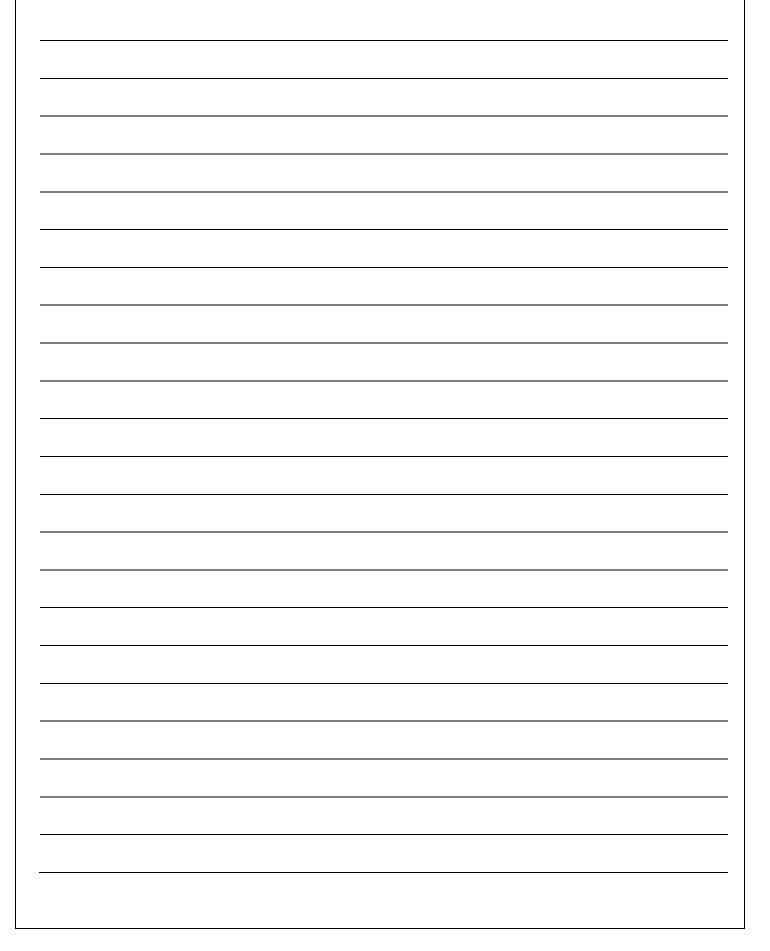

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The P&H 4100 electric rope shovel was nearing the end of its targeted lifecycle and the damage sustained by the fire does not make commercial sense to repair it. Your General Manager has asked you to provide him with briefing document for a meeting with the company CEO and CFO this afternoon where he aims to table a high-level plan to replace the shovel with a Liebherr 9800 excavator that would be matched with the relatively new CAT 797 ultra-class truck fleet.

 b) Develop a high-level summary document of the process you would use to justify purchase and replacement of the shovel with a new L9800 excavator, including aspects to be considered and types of information to be obtained. State any assumptions. (20 marks)

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c) Assuming the replacement will be approved, summarise an implementation plan for the introduction of the new excavator into mining operations to achieve health, safety, operational and legislative requirements. **(20 marks)** 

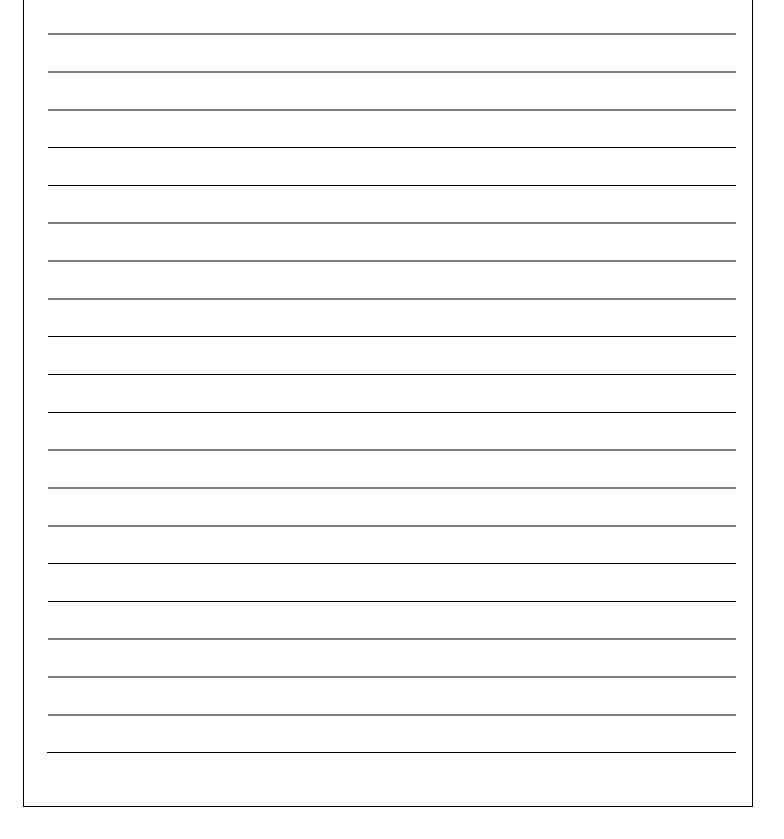


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## **Question 5 - Airborne Dust Management (total 60 marks)**

You have recently been appointed as the MEM at an established open cut operation. The General Manager has requested that you review and as necessary revise the principal hazard management plan (PHMP) for air quality or dust or other airborne contaminants as your first task.

 a) Describe the health & hygiene monitoring requirements which are legislated and should be included as part of the PHMP for air quality or dust or other airborne contaminants. (15 marks)



OCM2 – Practical Open Cut Operation – 2021 b) Name five common similar exposure groups (SEG) to be included as part of the above monitoring and discuss how their sampling frequency may differ, if at all. (10 mark)

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During the review of the PHMP, you become aware that the legislated exposure standard for respirable crystalline silica is going to be reduced by 50% in 12 months' time.

Upon review of some historical sampling programs of SEG groups at your site, you notice that there are some high readings for respirable crystalline silica.

The results are only just compliant with the current exposure standard but would in fact be in breach of the new exposure standard due to take legislative effect in 12 months.

c) Outline how you would manage this issue in the next 12 months and the process you would follow to ensure that future sample results for respirable crystalline silica will comply to the new exposure standard. **(35 marks)** 

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END OF QUESTIONS		

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