

# **QUARRY MANAGER OF MINES OTHER THAN UNDERGROUND MINES OR COAL MINES**

## **EXAMINATION FOR CERTIFICATE OF COMPETENCE**

**MAKE SURE YOU SCROLL RIGHT DOWN TO READ ALL THE INSTRUCTIONS USING SCROLL BAR --->**

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 2022

Explosives Act 2003

Explosives Regulation 2013

Start Date and Time: 6th September 2023 0850hrs

Duration: 2 hrs 40 minutes (including 10 minutes reading time)

By proceeding with this, you have acknowledged that you have read the exam rules and requirements and Breach of exam rules policy on our website.

### **Paper A - Legislative knowledge**

#### **Primary benchmarks (Focus Areas) include:**

Focus Area 1.1 - Statutory function being examined and other relevant statutory functions and responsibilities

Focus Area 1.2 - Safety Management System requirements for mines in NSW, specifically:

- Principal Hazard Management Plans
- Principal Controls Plans (Emergency, Explosive, Health, Mechanical and Electrical)
- Specific Mining, Electrical and Mechanical Engineering control measures and related Risk Plans

Focus Area 1.3 - Incident reporting requirements and protocols

Focus Area 1.4 - Work, health & safety requirements and regulations within the framework as it applies:

- General - WHS Act and Regulation
- Mine specific - WHS (Mines and Petroleum Sites) Act and Regulation
- Hazard specific relevant to the function e.g., Explosives Act and Regulation, Radiation Control Act and Regulation etc
- Legislated codes & standards

### **Marking criteria**

- **A candidate will be deemed competent in this paper if they have achieved the pass mark of 62%.**
- **If successful, the candidate will be deemed competent in;**
  - **Domain 1 - Statutory functions & regulatory requirements**
    - **Knowledge and understanding of their statutory function, or relevant others, and related WHS regulatory requirements**

In answering the questions candidates will be required to demonstrate a satisfactory knowledge of the legislation that applies to the statutory position of Quarry Manager at a mine other than an underground mine or coal mine. This will also include an assessment of their understanding of other statutory positions at the mine and general WHS legislation as it applies to mining operations.

**All Forty-nine (49) questions are to be attempted.**

**Not All** questions are of equal value and parts of questions may also vary in value. The marks applicable to each part of a question will be indicated adjacent to the question.

This examination is a **closed book** examination – that is you cannot bring any reference material in to refer to the exam, such as copies of legislation. Reference material will be provided in the exam paper as applicable.

Quarry Manager Paper A Candidate No. \_\_\_\_\_

Section Number	Candidate Score	Total Marks	Assessed by <i>Name</i>	Comments to justify, as necessary
1	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	17			
		<b>subtotal</b>		<b>/ 30</b>
2	1			
	2			
	3			
	4			
	5			

Section Number	Candidate Score	Total Marks	Assessed by <i>Name</i>	Comments to justify, as necessary
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	<b>subtotal</b>		<b>/ 40</b>	
<b>3</b>	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	<b>subtotal</b>		<b>/ 50</b>	
<b>4</b>	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			

Section Number		Candidate Score	Total Marks	Assessed by <i>Name</i>	Comments to justify, as necessary
	9				
	10				
	11				
	12				
	<b>subtotal</b>		<i>/ 50</i>		
<b>PAPER TOTAL</b>			<i>/170</i>		<i>Marks checked by:</i>

## **Section 1**

1. The WHS(MPS)R 2022 schedule 10 section 31 – 34 state the following;

Fill in the blanks.

The statutory function of quarry manager is to supervise \_\_\_\_\_ at the mine?  
(1 mark)

2. The WHS(MPS)R 2022 schedule 10 section 31 – 34 state the following;

Fill in the blanks.

The requirement for nomination to exercise the statutory function of Quarry Manager is that the individual nominated must hold a \_\_\_\_\_ that authorises the exercise of the statutory function? (1 mark)

3. Fill in the blanks.

The statutory function of mining surveyor is to \_\_\_\_\_ and \_\_\_\_\_ the survey plan of the mine (2 marks)

4. Fill in the blanks.

The statutory function of electrical engineer is to develop, supervise, monitor and review the standards and procedures for the \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ of electrical plant and installations at the mine (2 marks) (List any two of the missing words)

5. Which of the following is also a statutory function at a Tier 1 Quarry? (1 mark) Select the correct answer.
  - Production supervisor
  - Maintenance Engineer
  - Shotfire
  - None of the above

6. What are the number of hours that you must achieve to maintain your Tier 1 Quarry Manager practicing certificate over a 5-year period under the Maintenance of Competence scheme? (1 mark) Select the correct answer.
- 200 hrs
  - 90 hrs
  - 40 hrs
  - 10 hrs

7. Fill in the blanks.

An Electrical Engineer is not required at a mine if the total connected power to the mine is \_\_\_\_\_ kW or less or unless voltages greater than \_\_\_\_\_ AC or 1,500V DC are used at the mine (2 marks)

8. Fill in the blanks.

The requirement for nomination to exercise the statutory function of electrical tradesperson is that the individual nominated must— (1 mark)

- (i) have a \_\_\_\_\_ that authorises the doing of electrical wiring work, or
- (ii) have a proficiency certificate, issued by Training Services NSW, in an electrical trade, or
- (ii) have been continuously employed as an electrical tradesperson at a mine since 20 December 2005

9. Section 125 of WHS(MPS)R 2022 lists several matters that the mine operator must notify the Resources Regulator of (Notification of other matters) e.g. one example is the commencement of mining operations

List four (4) other matters. (4 marks) List your answers using a), b), c), d)

10. Section 7 of the WHS(MPS)Act 2013 defines seven (7) activities within the meaning of 'mining operations'. List four of these activities. (4 marks) List your answers using a), b), c), d)

11. If a 'mine operator' has not been appointed in accordance with the regulations, who then becomes the 'mine operator? section 7A WHS(MPS)A 2013 (1 mark)

12. Section 19 of the WHS(MPS)R 2022 requires the Safety Management System to set out the management structure for the management of work health and safety at the mine. Sub section 19 (2) (d) lists five (5) matters that need to be included in the management structure, (e.g. one example is the arrangements for filling temporary positions). List the four (4) other matters? (4 marks) List your answers using a), b), c), d)

13. Section 133 of the WHS(MPS)R 2022 – ‘Statutory functions’, states the following;

Fill in the blanks.

The mine operator of a mine must ensure an individual nominated to exercise a statutory function at the mine is readily \_\_\_\_\_ to exercise, and is \_\_\_\_\_ of exercising, the statutory function (2 marks)

14. Section 133 of the WHS(MPS)R 2022 – ‘Statutory functions’, states the following;

Fill in the blanks.

The mine operator of a mine must ensure not more than 1 individual is nominated to exercise a \_\_\_\_\_ statutory function at the mine (1 mark)

15. If there is no individual nominated to exercise the statutory function of Quarry Manager, ‘mining activities’ must not take place after? (1 mark) Select the correct answer.

- 14 days
- 7 days
- Stop immediately
- 1 month

16. If a Quarry Manager becomes aware of a matter that may interfere with their ability to exercise the statutory function, what must the Quarry Manager do? section 134 WHS(MPS)R 2022 (1 mark)

17. Where a ‘competent person’ is nominated to be the Quarry Manager in the absence of a qualified person, how long can this nomination be for in a calendar year? section 180 WHS(MPS)R 2022 (1 mark) Select the correct answer.

- 2 months
- 2 weeks
- 1 month
- 7 days



## Section 2

18. List the five (5) Principal Control Plans (PCP) required for a typical large hard rock quarry that are contained in the Safety Management System. (5 marks) List your answers using a), b), c), d), e)
19. Where a Principal Hazard is identified and a Principal Hazard Management Plan must be developed, what schedule of the WHS(MPS)R 2022 must be referenced and considered? (1 mark)
20. Section 28 (3) WHS(MPS)R 2022 details nine (9) components that must be included in a Principal Hazard Management Plan when it is being prepared. List six (6) of these components. (6 marks) List your answers using a), b), c), d), e), f)
21. Under what circumstances are additional Principal Hazard Management Plans that are not prescribed by the legislation required? (2 marks)
22. What action must be immediately taken if a known principal hazard exists, but a documented Principal Hazard Management Plan is not in place? (2 marks)
23. Section 107 (2) WHS(MPS)R states that the operator of a mine site must ensure each worker at the mine site is provided with suitable and adequate information, training and instruction. List four (4) of the five (5) requirements. (4 marks) List your answers using a), b), c), d)
24. Schedule 2, Section 4 WHS(MPS)R 2022 – ‘Explosives Control Plan’, sets out the contents and control measure requirements to ensure the safe use of explosives on a mine site. Name five (5) procedures that the explosives control plan must set out as listed in section 4 subsection (2). (5 marks) List your answers using a), b), c), d), e)
25. You recently engaged a new drill and blast contractor. Before they commence work, and as per the requirements of section 26 WHS(MPS)R, arrangements must be in place with respect to safety management plans. What are the two options available to the contractor and how is the process completed? (5 marks) List your answers using a), b)

26. Clause 48 WHSR2017 states a person conducting a business or undertaking must manage risks to the health and safety of a worker associated with remote or isolated work (working alone), in accordance with Part 3.1. In your own words, list 4 additional controls that you could implement in a system of work to ensure effective communication and supervision are achieved. (4 marks) List your answers using a), b), c), d)
27. Section 18 of the WHS(MPS)R 2022 states that the operator of a mine site must ensure the safety management system for the mine is reviewed, to ensure it remains effective—
- (a) within \_\_\_\_\_ of the commencement of mining operations or petroleum operations at the mine or petroleum site, and (1 mark)
- (b) at least once every \_\_\_\_\_ years after the commencement. (1 mark)
- Fill in the missing time frames. List your answers using a), b)
28. List the two Australian Standards that are prescribed in the WHS(MPS)R 2022, one in section 34 'Electrical Safety' and one in section 33 'Explosives' of. (2 marks) List your answers using a), b)
29. In addition to legislated review timeframes or reviews initiated by an incident, what other external triggers would warrant a review of sections of your Safety Management System (SMS)? List two triggers. (2 marks) List your answers using a), b)

### **Section 3**

30. In the WHS(MPS)A 2013 section 14 - Incident Notification, what are the three (3) categories of 'notifiable incidents'? (3 marks) List your answers using a), b), c)
31. The WHS(MPS)R 2022 section 190 – 'Dangerous Incidents', identifies twenty-seven (27) requirements to notify the Regulator. Name ten (10) of the categories of 'Dangerous Incidents'. (10 marks) List your answers using a), b), c), d), e), f), g), h), i), j)
32. What is the primary difference between the high potential incident events identified in section 124 5 (a), which refers to events in section 190 (1), and the other dangerous incidents identified in section 190? (4 marks)

33. What are the different reporting requirements for a Dangerous Incident (DI) and a High Potential Incident (HPI) to the Regulator? With respect of time frame and method of notification. (4 marks) List your answers using a), b)
- a) Dangerous Incident
- b) High Potential Incident
34. Section 15 WHS(MPS)R – ‘Review of Control Measures’, lists four (4) circumstances when a review of control measures must be undertaken. List the four (4) circumstances. (4 marks) List your answers using a), b), c), d)
35. The WHS(MPS)A 2013 s 17 – ‘Duty to preserve incident sites’ allows an incident scene to be disturbed under certain circumstances. List three (3) of the five (5) circumstances. (3 marks) List your answers using a), b), c)
36. An incident that results in a serious injury or illness is a notifiable incident. Name at least six (6) prescribed serious injuries or illnesses that come under this category - section 189 WHS(MPS) R2022. (6 marks) List your answers using a), b), c), d), e), f)
37. You have just commenced as the new Quarry Manager of a large Tier 1 quarry and you immediately commence a review of your Safety Management System (SMS). This includes the ‘procedures for the response to, and investigation of, incidents’, WHS(MPS)R section 19 (2)(n).
- As part of the review, you will have to develop and train your supervisors in what a good incident reporting and investigation system looks like.
- List eight headings that you will include in the system and training to cover the lifecycle of ‘incident reporting and investigation’ and give a brief description of what each heading will include. (16 marks) List your answers using a), b), c), d), e), f), g), h)

**Section 4**

38. The WHSA 2011 Section 19 states a Person Conducting a Business or Undertaking (PCBU) must ensure, so far as is reasonably practicable the health and safety of workers and that other persons are also not put at risk. Section 19 (3) lists seven (7) provisions that the PCBU must ensure when providing a safe workplace.

List five (5) of the provisions and detail one example of how you would achieve this provision. (10 marks)

Insert a 6x2 table and fill in your answers as per table below.

Provision	Example of how you would achieve the provision

39. Section 14 of the WHS (MPS)R 2022 requires the mine operator to manage risks at a mine in accordance with Part 3.1 of the WHS Regulations. Note: Part 3.1 includes Clauses 32 to 38 of the WHS Regulations.

Fill in the blanks.

A duty holder, in managing risks to health and safety, must identify all \_\_\_\_\_ hazards that could give rise to risks to health and safety (clause 34 WHSR) (List the two missing words) (2 marks)

40. How must a duty holder manage risks to health and safety? (Clause 35 WHSR) (2 marks)

41. What are the risk control measures, in order of effectiveness, that must be implemented if the risks cannot be eliminated? The hierarchy of control measures - Clause 36 WHSR. (5 marks)

42. In your own words, describe what the difference between prescriptive and performance (outcome based) legislation is. (4 marks)

43. Using the list of legislation below, nominate where you would find the most relevant legislative information relating to the following matters: (10 marks)

(A) Work Health and Safety Act 2011

(B) Work Health and Safety Regulation 2017

(C) Work Health and Safety (Mines and Petroleum Sites) Act 2013

(D) Work Health and Safety (Mines and Petroleum Sites) Regulation 2022

(E) Explosives Act 2003

(F) Explosives Regulation 2013

a) Duties of officers

b) Licencing for High-Risk Work

c) Requirements to keep a 'mine record'

d) Contents of a Safety Management System

e) Management of risk of fall (working at heights)

f) Specific controls relating to the 'movement of mobile plant' on a mine

g) Managing risks relating to noise exposure

h) Establishment of Mine Competence Board

i) Managing psychosocial risks

j) Issuing of a non-disturbance notice

List your answers using a), b), c), d), e), f), g), h), i), j)

44. An Inspector comes to the mine site and requests to see a copy of the operators 'mine record' WHS(MPS)R section 129. List 4 things the 'mine record' must contain. (4 marks) List your answers using a), b), c), d)

45. In your own words, what is the meaning of a 'psychosocial hazard'? (4 marks)
46. List four (4) examples of psychosocial hazards that workers may encounter. 'Safe Work Australia - psychosocial hazards' Code of Practice. (4 marks) List your answers using a), b), c), d)
47. Other than a (BEUL), name three (3) other explosive licences able to be granted by the Regulator pursuant to the *Explosives Regulation 2013 (clause 21)* that may be required when blasting at a quarry: (3 marks) List your answers using a), b), c)
48. Fill in the blanks.
- Prior to a natural person being able to have unsupervised access to any type of explosives they must first be granted with a current \_\_\_\_\_? (1 mark)
49. You commence outsourcing your drill and blast activities to a contractor. Who now has duties with respect to the blasting activities on site? (1 mark) Select the correct answer.
- Mine holder
  - Shotfire (only)
  - Mine operator (only)
  - Mine operator and shotfire

**END OF PAPER**

# **QUARRY MANAGER OF MINES OTHER THAN UNDERGROUND MINES OR COAL MINES**

## **EXAMINATION FOR CERTIFICATE OF COMPETENCE**

**MAKE SURE YOU SCROLL RIGHT DOWN TO READ ALL THE INSTRUCTIONS USING SCROLL BAR --->**

Legislation to be assessed:

Unless otherwise stated all references to Act and Regulations are to:

Work Health and Safety Act 2011

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Work Health and Safety (Mines and Petroleum Sites) Act 2013

Work Health and Safety (Mines and Petroleum Sites) Regulation 2022

Explosives Act 2003

Explosives Regulation 2013

Start Date and Time: 6th September 2023 1200hrs

Duration: 2 hrs 40 minutes (including 10 minutes reading time)

By proceeding with this, you have acknowledged that you have read the exam rules and requirements and Breach of exam rules policy on our website.

### **Paper B - Legislation application and technical knowledge**

#### **Primary benchmarks (Focus Areas) include:**

Focus Area 2.1 - Apply technical knowledge and understanding to the development and implementation of the mine Safety Management System

Focus Area 2.2 - Apply working knowledge and technical understanding of effective controls for the management of hazards, safe operation, inspection and maintenance of systems, plant and equipment, relevant to the statutory function

Focus Area 2.3 - Mining/Engineering design and planning through the development, implementation and/or application of technical knowledge

Focus Area 2.4 - Training and instruction of workers

Focus Area 3.1 - Assess, inspect and monitor the workplace to identify and manage hazards, risks, emerging issues and changing work conditions through the application of a hierarchy of controls

Focus Area 3.2 - Compile and review shift/engineering reports, information provided by others and other available objective evidence to inform risk assessment and mitigation

Focus Area 3.3 - Management of high-risk activities or work

#### **Marking criteria**

- **A candidate will be deemed competent in this paper if they have achieved the pass mark of 63%.**
- **If successful, the candidate will be deemed competent in;**
  - **Domain 2 - Application and implementation of hazard management through technical knowledge.**
  - **Domain 3 - Situational Awareness and risk management.**

In answering the questions candidates will be required to demonstrate a satisfactory knowledge of the technical hazards and controls required to manage risks if they were appointed to the statutory position of Quarry Manager at a mine other than an underground mine or coal mine. This will also include the application of the legislation during the assessment and implementation of controls.

Demonstrate awareness of relevant standards, codes of practice and/or MDGs for each answer if applicable.

**All Forty-six (46) questions are to be attempted.**

**Not All** questions are of equal value and parts of questions may also vary in value. The marks applicable to each part of a question will be indicated adjacent to the question.

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Quarry Manager Paper B Candidate No. \_\_\_\_\_

Section Number	Candidate Score	Total Marks	Assessed by <i>Name</i>	Comments to justify, as necessary
1	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	subtotal		/ 60	
2	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	subtotal		/ 25	

Section Number	Candidate Score	Total Marks	Assessed by <i>Name</i>	Comments to justify, as necessary
3	1			
	2			
	3			
	4			
	5			
	6			
	<b>subtotal</b>		<b>/ 20</b>	
4	1			
	2			
	3			
	4			
	<b>subtotal</b>		<b>/ 20</b>	
5	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	<b>subtotal</b>		<b>/ 40</b>	
6	1			
	2			

Section Number		Candidate Score	Total Marks	Assessed by <i>Name</i>	Comments to justify, as necessary
	3				
	<b>subtotal</b>		/ 10		
7	1				
	2				
	<b>subtotal</b>		/ 15		
<b>PAPER TOTAL</b>			/190		<i>Marks checked by:</i>

## Section 1

1. You have recently been employed as a group Quarry Manager and you are initially tasked with reviewing your companies overarching quarry guideline. This document details technical information for Quarry Managers to support the implementation of their Safety Management System (SMS). The following questions relate to your review.

When designing a quarry road network, list five (5) overarching design principles (concepts) the guideline will adopt to reduce the potential for vehicle collisions. Also list the 'hierarchy of control' that matches each principle. (10 marks). List your answers using a), b), c), d), e)

2. When designing two-way haul roads that decline into a pit, list six (6) key road design criteria that will be included in the guideline? (6 marks). List your answers using a), b), c), d), e), f)
3. When designing haul road intersections, list six (6) design criteria that will be included in the guideline. (6 marks) List your answers using a), b), c), d), e), f)
4. The blasting section of the guideline provides guidance on how to design and establish an exclusion zone, which is a requirement of AS 2187.2-2006 Appendix L. When designing an exclusion zone for a new site, list six (6) steps you would take in determining its dimensions. (6 marks). List your answers using a), b), c), d), e), f)
5. List eight (8) steps that you will take to establish and de establish the exclusion zone on the day of the blast. (8 marks). List your answers using a), b), c), d), e), f), g), h)
6. The quarry guide requires additional information relating to blast design and its relationship with ground vibration and overpressure. Ground vibration limits for human comfort chosen by some Regulatory Authorities are listed in AS 2187.2 Table J4.5(A). For a site that has been operating for greater than 12 months, the recommended vibration limits for peak component particle velocity (mm/s) at an adjacent occupied house are: (1 mark) (select the correct answer)
  - 50mm/s for 95% of blasts per year 100mm/s maximum unless agreement is reached
  - 15 mm/s for 95% of blasts per year 30 mm/s maximum unless agreement is reached
  - 0.5 mm/s for 95% of blasts per year 1.0 mm/s maximum unless agreement is reached
  - 5mm/s for 95% of blasts per year 10mm/s maximum unless agreement is reached
7. The quarry guide requires additional information relating to blast design and its relationship with ground vibration and overpressure.

Airblast limits for human comfort chosen by some Regulatory Authorities are listed in AS 2187.2 Table J5.4(A). For a site that has been operating for greater than 12 months, the recommended airblast limits for peak sound pressure level (dBL) to an adjacent occupied house are: (1 mark) (select the correct answer)

- 130 dBL for 95% of blasts per year & 150 dBL maximum unless agreement is reached
  - 75 dBL for 95% of blasts per year & 90 dBL maximum unless agreement is reached
  - 115 dBL for 95% of blasts per year & 120 dBL maximum unless agreement is reached
  - 150 dBL for 95% of blasts per year & 170 dBL maximum unless agreement is reached
8. A method of reducing environmental outputs from a blast (vibration and overpressure) is to deck load the shot.  
How does deck loading reduce the environmental outputs? (1 mark)
9. A method of reducing environmental outputs from a blast (vibration and overpressure) is to deck load the shot.  
Air decking is one such technique, what does air decking mean? (2 marks)
10. When designing your initiation hook up, what does the term 'burning front' mean and how is this achieved to prevent a misfire? (2 marks)
11. In your own words explain what the following terms mean. (10 marks) List your answers using a), b), c), d), e)
- a) Powder factor
  - b) Face burst
  - c) False Burden
  - d) Blast Fume
  - e) Reactive Ground
12. In your own words describe what each of the following terms mean, 'laser profiling' and 'bore tracking'. How do they combine to ensure front row burden design is achieved before a shot is fired? (4 marks). List your answers using a), b), c)
- a) Laser Profiling
  - b) Bore Tracking
  - c) How do they combine?
13. You are reviewing the drilling contractors drill log prior to designing a production blast. What anomalies are you looking for in the log that could affect the design performance of the shot? List three (3) items (3 marks). List your answers using a), b), c)
14. Your quarry has begun the planning process for the replacement of your Heavy Mobile Equipment (HME) refuelling station. Senior management have asked you to oversee the implementation of a 'change management system'. List five (5) components of the system. (5 marks) List your answers using a), b), c), d), e)

15. As part of the refuelling station upgrade you will be required to update your Principal Hazard Management Plan for Fire and Explosion. Schedule 1 WHS(MPS)R details seven (7) matters to be considered when developing control measures to manage the risk of fires.

The first matter is the identification of all potential fuel sources. List four (4) other matters that must be considered. (4 marks) List your answers using a), b), c), d)

16. While reviewing the PHMP for Fire and Explosion you take the opportunity to review the control measures you have in place for storing flammable and combustible liquids.

What Aus Standard details the requirements for the storage and handling of flammable liquids? (1 mark) (select the correct answer)

- AS 3000
- AS 1940
- AS/NZ4024
- AS 1657

17. What signage would you expect to see in your existing diesel refuelling station, which has two above ground tanks? List four (4) signs. (4 marks) List your answers using a), b), c), d)

18. As part of the Fire and Explosion review you engage an external electrical contractor to do a high level 'arc flash' study on your electrical switch boards. You have just been emailed their findings report, which includes a proposed program of work.

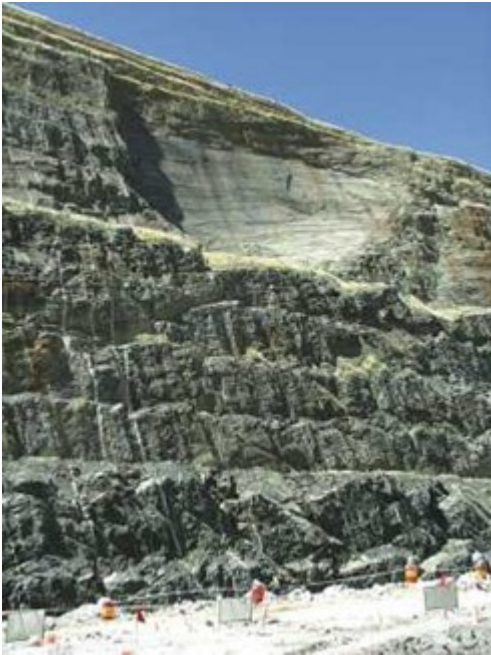
In your own words describe what the term 'arc flash' means? (4 marks)

19. Who are the main two persons you will involve from your statutory team to implement the program of works? (2 marks)

20. Name the primary control plan on site that will contain information relating to this hazard. (1 mark)

21. List four controls that you would/could implement to manage ARC flash hazards at your mine. (4 marks) List your answers using a), b), c), d)

### Section 3



22. The highwall at your quarry has experienced a substantial failure of ground, which included the failure of two benches located at the top of a 5-bench face. You are undertaking a review of the current design parameters, possible causal factors and the development of a program of works to continue mining.

List five (5) possible contributing factors that may have lead to the failure of the two upper benches. (5 marks). List your answers using a), b), c), d), e)

23. Future production is dependent on the expansion of the pit through this section of highwall. List three (3) investigative studies relating to highwall design and ground stability you will initiate prior to mine planning commencing. (3 marks) List your answers using a), b), c)

24. The investigative studies give you little confidence that the mining conditions are improving. With specific reference to the two upper benches, what quarry design and ground stability parameters can you alter to improve the stability of the final highwall when you reach the terminal faces? List 3 parameters. (3 marks) List your answers using a), b), c)

25. In the interim and before you commence mining through this section of the pit, you need to implement a stability monitoring program. List four (4) methods of monitoring that you could implement. (4 marks) List your answers using a), b), c), d)

26. You visit a sister operation as part of your continuous improvement program and are shown around by their supervisor. See picture below.



What are the two main highwall design controls /hazards that have failed in this picture? List the deficiencies. (2 marks) List your answers using a), b)

27. You approach the excavator operator and ask him to explain what controls he has for working in close proximity to the face. List three primary controls (not administrative) that you would expect him to have in place. (3 marks) List your answers using a), b), c)

#### **Section 4**

28. You have just transferred to a new site as Quarry Manager and you are in the process of reviewing your training and instruction system.

List two key documents that you initially request to commence your review. (2 marks) List your answer using a), b)

29. You then focus on the process used to ensure operators of Heavy Mobile Equipment (HME) have been deemed competent and remain competent. Describe what your HME training and assessment process will consist of. List seven (7) steps. (7 marks) List your answer using a), b), c), d), e), f), g)

30. During the first week on site you receive a safety alert from the NSW Resources Regulator and it quickly becomes apparent that your supervisors have no system to manage the receipt and processing of safety alerts and bulletins. You gather the supervisors to draft a procedure. List five (5) processes the procedure will describe. (5 marks) List your answers using a), b), c), d), e)

31. At your half yearly SMS review you are alerted to the deficiencies of your Drug and Alcohol (D & A) procedure. You have a policy in place, however there is no supporting procedure. List six (6) key sections (headings) that you would include in your D & A procedure. (6 marks) List your answers using a), b), c), d), e), f)



**Section 5**

32. You are the new quarry manager at a large quarry operation. The quarry has had a number of worker exceedances for respirable crystalline silica (RCS) over the past 3 years that have been reported to the Regulator. Previous management has attempted to reduce worker exposure however every time personal monitoring is conducted, similar results are recorded. The site is in the spotlight with increasing pressure to reduce worker exposure.

Explain how you would go about reducing worker exposures to an acceptable level (below exposure standard and as low as reasonably practicable) by listing the steps you would take to assess, modify and control the work environment. List and describe seven (7) of these steps. (14 marks) List your answer using a), b), c), d), e), f), g)

33. As part of the ongoing dust management strategy, a risk-based TARP approach is going to be developed. In your own words explain how a TARP risk management system works. (6 marks)

34. List 3 areas/hazards at your mine where you may use a TARP risk management system. (3 marks) List your answers using a), b), c)

35. Choose two of the areas/hazards from the previous question and populate the following table in your answers. List an example for each heading of how a TARP may be used to mitigate a hazard. (6 marks)

To create a table, select insert table, and select a 4x4 table. Populate the table as per the below format and write your answers.

<b>TARP(XXXXX Control)</b>			
Area/Hazard	T___	A___	R___
	-	- -	- -
	-	- -	- -

36. If Respirable Crystalline Silica (RCS) is identified as a hazard on site the requirements of section 89 WHS(MPS)R 2022 and schedule 6 are enforced. The following questions relate to the requirements when developing a personal dust monitoring program and schedule 6.

Fill in the blank.

Samples of respirable dust must be taken at least once every \_\_\_\_\_ months. (1 mark)

37. Fill in the blank.

Samples must be taken in each part of a mine where dust is, or may be, present, including from the breathing zone of at least \_\_\_\_\_ persons. (1 mark)

38. Fill in the blank.

Companies performing this sampling must be licenced with \_\_\_\_\_, in accordance with Part 10 of this regulation. (1 mark)

39. What does the term SEG refer to when conducting a personal dust monitoring program? (1 mark)

40. List three (3) SEG's on your site that are most likely to be exposed to Respirable Crystalline Silica (RCS) exposure. (3 marks) List your answers using a), b), c)

41. What is the national exposure standard for the following dust concentrations? (4 marks) List your answer using a), b), c), d)

a) Inhalable (mg/m<sup>3</sup>)

b) Respirable (mg/m<sup>3</sup>)

c) Respirable crystalline silica (RCS) (mg/m<sup>3</sup>)

d) Diesel particulate (mg/m<sup>3</sup>)

## **Section 6**

42. Your quarry is currently running a production day shift (6:00am – 6:00pm) and a maintenance back shift that finishes at 2:00am in the crushing plant. You arrive to work and your day shift supervisor advises you that the preceding maintenance shift supervisor has not left a shift handover

report. She has no idea what work has been completed in the plant and whether the plant is able to be operated. Day shift are awaiting instructions at the morning muster.

What is your immediate response to the supervisor and team, and what actions will you take to manage the situation and get the plant operational? List four (4) actions. (4 marks) List your answers using a), b), c), d)

43. Section 31 WHS(MPS)R 2022 details what requirements should be outlined in a multi shift handover report? In your own words outline what these reporting requirements are. List 4 steps in the process. (4 marks) List your answers using a), b), c), d)

44. You decide to examine the plant isolation system (documentation) for evidence of task completion. What is the main document you will be requesting and what information will you be trying to confirm? (2 marks)

## Section 7



45. Your site has commenced planning for a programme of major shutdown work that is going to include the replacement of a secondary crusher feed chute and the relining of an overhead bin. Q35 Schedule 3 of the Work Health and Safety Regulation 2017 requires certain activities to only be performed by persons who hold a 'high risk work licence'.

List five (5) different types of high-risk work licences that may be required when performing this planned work. (5 marks) List your answers using a), b), c), d), e)

46. During the planning phase your team has identified that you need to develop a checklist for your supervisors to use prior to conducting individual lifts. List ten (10) controls that will be on the checklist. (10 marks) List your answers using a), b), c), d), e), f), g), h), i), j)

**END OF PAPER**