



POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN 2025

EPL 684

235 Martin Road Bradfield NSW 2556

PGH Bricks & Pavers

POLLUTION INCIDENT RESPONSE MANAGEMENT PLAN

Badgerys Creek Quarry and Brick Making Project 235 Martin Road, Bradfield, NSW, 2171

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Document Preparation and Control	Document Review
Nelma Arancibia (CSR)	
Document Approval	Signature

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BCPIRMP	09	01/10/2025

Revision History, Test and Training

The document control table below will reflect all PIRMP Revision Details for at least four consecutive years

Document Revision History, test and Training				
Version	Date	Revision Details	Revised by	Approved by
Version 0	06/10/16	Supersedes previous Boral versions with new format and additional details to reflect: - Boral & CSR merger - PIRMP Test completed on 06/10/16 - PIRMP Training conducted 06/10/16 Annual Review of PIRMP 30/09/16	Attila Balazs (ECS)	Debbie Cook National WHSE Manager Boral CSR
Version 02	03/10/17	Administrative changes post annual review (desktop) Personnel PIRMP training frequency changed to two yearly whilst site is not operational.	Debbie Cook National WHSE Manager PGH Bricks and Pavers	Debbie Cook National WHSE Manager PGH Bricks and Pavers
Version 03	30/11/19	Review undertaken post illegal dumping incident; administrative changes made; plant manager change to National Environment Manager	Debbie Cook National WHSE Manager PGH Bricks and Pavers	Debbie Cook National WHSE Manager PGH Bricks and Pavers
Version 04	10/01/20	Administrative changes post annual review (desktop).		
Version 05	12/11/2021	Onsite Training – changes to add comments from onsite training	Nelma Arancibia (CSR)	
Version 06	01/11/2022	Onsite training – no changes	Nelma Arancibia (CSR)	
Version 07	8/09/2023	Updated to include risk of bushfire as per NSW EPA correspondence	Monique Elbarbary (CSR)	
Version 08	01/12/2024	Rehabilitation works expanded	Nelma Arancibia (CSR)	
Version 09	18/11/2025	Inclusion of Contractor PCP's and PHMPs	Nelma Arancibia (CSR)	

Executive Summary

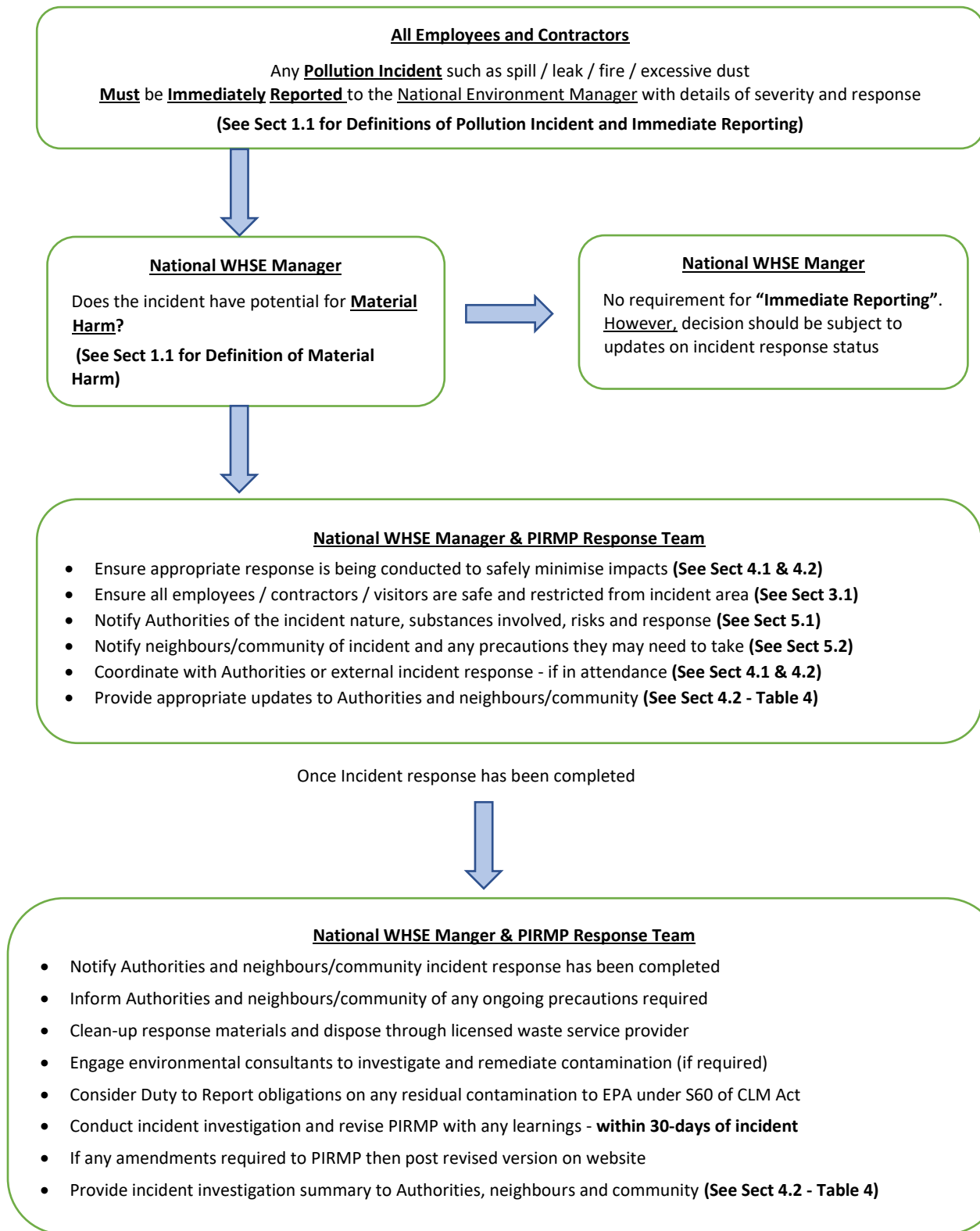
This Pollution Incident Response Management Plan (PIRMP) has been prepared for the Badgerys Creek Brick Quarry and Brick Making Project operating within the conditions of an Environment Protection Licence (EPL No. 684) issued under the *Protection of the Environment Operations Act 1997* (POEO Act).

All holders of an EPL are required to prepare and implement a PIRMP which includes procedures for the:

- Identification, risk assessment and appropriate controls in minimizing the potential for a pollution incident associated with the Site operations and materials.
- Efficient and effective response to pollution incidents.
- Comprehensive and timely communication about a pollution incident to:
 - employees, contactors and visitors.
 - the **EPA** and other relevant Authorities such as local councils, NSW Ministry of Health, SafeWork NSW, and Fire and Rescue NSW; and
 - neighbors and communities who may be impacted by the pollution incident; and
- Testing and review of the PIRMP for its accuracy, currency and effectiveness in responding and communication of a pollution incident.

The following flowchart provides a summary on the activation procedure of the Badgerys Brick Plant PIRMP.

PIRMP Activation Procedure



1. INTRODUCTION

This Pollution Incident Response Management Plan (**PIRMP**) has been prepared for the Badgerys Creek Brick Quarry and Brick Making Project (**the Site**) which operates under the regulatory requirement of an Environment Protection Licence (**EPL No. 684**) administered by the NSW Environment Protection Authority (**EPA**).

All holders of an EPL are required to prepare and implement a PIRMP which provides details on the manner in which the Site will comply with the requirements of Part 5.7A of the *Protection of the Environment Operations Act 1997* (**POEO Act**) and relevant clauses of the *POEO General Regulation* (**POEO Gen Reg**), which includes procedures for the:

- Identification, risk assessment and appropriate controls in minimizing the potential for a pollution incident associated with Site operations and materials.
- Efficient and effective response to pollution incidents.
- Comprehensive and timely communication of a pollution incident to:
 - employees, contactors and visitors.
 - the **EPA** and other relevant Authorities such as local councils, NSW Ministry of Health, SafeWork NSW, and Fire and Rescue NSW; and
 - neighbors and communities who may be impacted by the pollution incident; and
- Testing and review of the PIRMP for accuracy, currency and effectiveness in responding and communication of a pollution incident.

1.1. Key PIRMP Definitions

The following definitions provide an understanding of three key terms that the EPA generally reference in relation to when a PIRMP is expected to be activated:

Pollution Incident means an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.

Material Harm to the environment is when:

- It involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or
- it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

Immediately Reporting simply means promptly and without delay. The amount of time that this actually takes is likely to change depending on the circumstances of the incident.

1.2. Site Description and Operations

The Site is approximately 200 ha in area and it was mothballed since April 2012 by its previous owners, PGH Bricks & Pavers through its parent company CSR, obtained approval from The Department of Planning, Industry and Environment in 2020 for the redevelopment of the site which includes;

- Building a new brick making facility
- Quarrying a new Pit (Known as Pit 3)
- Dewatering exhausted quarry pits (known as Pit 1, 2 and 3)
- Rehabilitating the exhausted quarry pits by filling with VENM and bringing them to natural ground level.

The site has undertaken the dewatering and site rehabilitation works only, the old brick factory was demolished in 2021 and no quarrying activities been undertaken.

The status of the rehabilitation works as of Q4 2025 are;

All pits have been dewatered as of 2025.

the old Pit 3 quarry has been filled with engineering fill and filling works are now completed.

Pit 2 following the completion of its dewatered, the filling works commenced, and are circa 40% completed.

Pit 1 following the completion of its dewatered, rehabilitation works have commenced.

Existing features of the Site include (see Figure 1):

- Various administration buildings, a brick finished goods storage yard, car parks and internal road network.
- three completed quarry pits (known as Pits 1, 2 and 3).
- Three large sediment basins in the eastern and northern portions of the site.
- Two smaller dams in the eastern and northern parts of the site; and
- The far eastern portion of the site adjacent to South Creek and the far northern portion being undeveloped; and used for stock agistment and grazing.
- Sediment Basin A which captures surface water from the Eastern and Central areas of the site
- Sediment Basin B which treats and releases surface water to Badgerys Creek

The underlying topography of the Project Site is relatively flat, however quarrying activities on the site have substantially altered the natural landform on the site with various voids and elevated stockpiles present in the western part of the site.

Martin Road provides the primary access to the Site, adjoining the north-eastern corner of the site. Internal site access is facilitated via a sealed access road extending from Martin Road to the site office. Access to the hardstand is restricted with a secure gate adjoining the visitor car park, the hardstand is occupied by Monier roof tiles, it receives and dispatches building products.

The Site is bound by Badgerys Creek to the west, Ingham's property group to the south, South Creek to the east and Australia Native Landscapes (ANL) and rural residential properties to the north. The Blue Mountains National Park is located approximately 16 km to the west of the site.

The Site is located within the South Creek and Badgerys Creek catchments, which are part of the greater Hawkesbury Nepean catchment area. The eastern property boundary adjoins South Creek, and the western property boundary adjoins Badgerys Creek. A small tributary of Badgerys Creek is located in the south-western portion of the Site.

Rehabilitation and dewatering activities at the site are undertaken by the principal contractor engaged by CSR. The principal contractor operates under a Site Safety Management Plan and a suite of Principal Control Plans (PCPs) and Principal Hazard Management Plans (PHMPs) that address key hazards including dust and airborne contaminants, electrical and mechanical engineering, ground strata, roads and traffic, emergency management and fire and

explosion. These contractor management plans in the appendix are implemented in a manner that is consistent with, and gives effect to, the pollution risk controls and response requirements set out in this PIRMP.

Figure 1: Site Operational Boundary and Surrounding Locality



Legend

- 1: Sediment Dam No. 1
- 2: Sediment Dam No. 2
- 3: Old Brick Storage Area
- 7: Raw Material Stockpile
- 8: Pit 1 (under rehabilitation)
- 9: Pit 2 (under rehabilitation)
- 10: Old Pit 3 (under rehabilitation)
- 11: Sediment Dam No. 3
- 12: Gate House
- 13: Sediment Basin A
- 14: Sediment Basin B
- 15: chemical storage

2. INVENTORY AND RISK ASSESSMENT

The Site operations have been terminated and the rehabilitation works well underway, the site is now a construction site and hardstand storage facility. Table 1 provides an inventory of substances required as part of Site operations and a risk assessment on the likelihood and consequence of an associated pollution incident. The respective risk rankings are based on the most severe incident associated with each of the substances using the risk matrix presented in Table 2.

Table 1: Inventory of Substances with Potential for Material Harm

Substance / Incident	Max Quantity	Risk Assessment		Risk Ranking (See Table 2)
		Consequence	Likelihood	
Chemical Storage Turbiclear and Acid (Catastrophic failure resulting in total volume loss)	2,000L	1	1	Low
Additives and Oxides (Spill/Leak entering stormwater drains and/or surface waters)	1,000kg	1	2	Low
Residue Waste (Oils, Solvents etc.) (Spill/Leak entering stormwater drains and/or surface waters)	1,000L	1	2	Low
Clay (Potential dust incidents impacting neighbor's amenity)	Note 1	1	2	Low
Sedimentation Dams No 1, 2, 3, A&B (Discharge without meeting EPL limits breaching EPL compliance conditions)		1	1	Medium
Note 1: Providing a maximum quantity of clay / dust / water / sediment is not possible within any practical accuracy.				

Table 2 – Risk Assessment Matrix

Measures of Consequence		
Value	Description	Impact
1	Minor	On-site release immediately contained
2	Moderate	On-site release contained with outside assistance
3	Major	Off-site release with specialist assistance and clean up required

Measures of Likelihood		
Value	Description	Impact
3	Highly Likely	The event could occur weekly in normal circumstances
2	Likely	The event could occur once per month
1	Unlikely	The event could occur once every one to five years

3. MANAGEMENT OF RISK AND PREVENTION STRATEGIES

Table 3 outlines the potential environmental risks and emergencies identified and risk assessment, the emergency equipment used on site consists of: spill kits, fire extinguishers, eye wash stations and first aid equipment.

Table 3 – Summary of potential emergency incidents, preventative actions and proposed response actions

Potential Incident	Potential Risk	Preventative actions	Response actions to incident
Bush/grass fire	Major	- Live stock onsite keeping long grass short - Communication with neighbours - Water cart - Maintaining access tracks	- Shut down any plant and equipment - Report to Emergency assembly area - Account for all personnel onsite - Contact Emergency services (fire department) 000 - Cooperate with Emergency services

Risk Ranking			
LIKELIHOOD	CONSEQUENCE		
	Minor (1)	Moderate (2)	Major (3)
Highly Likely (3)	M (3)	H (6)	H (9)
Likely (2)	L (2)	M (4)	H (6)

Unlikely (1)	L (1)	L (2)	M (3)
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4. PRE-EMPTIVE MEASURES

Pre-emptive measures implemented to minimize the risk of a pollution incident associated with key Site activities include the following:

4.1. PIRMP Administration

A copy of the PIRMP will be available on-site at all times. The PIRMP will be the subject of annual training and testing amongst relevant Site employees, CSR personnel and contractors to ensure at all times there is a high level of awareness of response and reporting requirements.

The PIRMP will be the subject of at least an annual review or within 30-days of a pollution incident. Any revised versions of the PIRMP will be posted on the PGH website within 14-days of internal approvals of amendments.

Inductions of new employees, contractors and visitors will include key aspects of the PIRMP such as alarm warnings, emergency evacuation points and safety muster locations to minimize potential harm to people on or likely to be on the Site during a pollution incident.

The principal contractor is required to implement and maintain its Site Safety Management Plan and associated PCPs and PHMPs for all rehabilitation and dewatering activities undertaken at the Site. These documents provide detailed task-level controls, safe work methods, and communication arrangements through which this PIRMP is applied to contractor operations.

4.2. Management of Potential Pollutants

4.2.1. Diesel and Chemical Storage

- Chemical Storage – 2,000 L of turbidular and acid chemicals are stored onsite at any one time in self bunded containers (refer to Figure 1)
- During their on-site transport, bulk and packaged chemicals are secured to minimize potential for spills.
- Firefighting and spill response equipment are readily accessible for incident response; and
- Stock inventory and control is undertaken to minimize on-site quantities and volumes of potential pollutants.

4.2.2. Sedimentation Dams and Stormwater Drains

The Site has five main Sedimentation Dams (Refer to Figure 1). Management of the Dams include:

- Monitoring of Dam water quality in accordance with EPL requirements.
- Appropriate storage and movement of potential pollutants with consideration to stormwater drains.
- During rain events mainly exposed surface areas located in the eastern and central areas of the site, surface water runs to the new Basin A (catchment basin) surface water is then pump (and treated to

remove pH and Turbidity) to Basin B (settling pond) where then clean water is discharged to Badgerys Creek

- Availability of a number of spill response kits in areas with potential for spills and Site personnel trained in their use.
- Periodic inspections of the integrity Dams and stormwater drains; and
- Stormwater and sediment management over disturbed areas, including risk-based progressive rehabilitation.

4.2.3. Air Quality

The Site manages air quality in accordance with EPL requirements which includes the following actions:

- Water cart available at all times.
- Vehicle speed management.
- Limit or postpone operations with likelihood of pollution during unfavorable weather events; and
- Network of dust monitoring gauges for monthly assessment of emissions.
- Real-time dusk truckers monitoring dust limitations

4.2.4. Bushfire

The site manager will manage the site in accordance with the fire evacuation plan which includes the following actions:

- Continue grazing the padlocks to maintain long grass short.
- Water car onsite at all times
- Communicate with Emergencies services.
- Follow emergency evacuation plan

4.2.5. Noise

The site manager will manage activities in accordance with the EPL noise limitation which include the following actions:

- Broadband reversing alarms or other non-tonal vehicles movement and warning alarms shall be fitted to all machinery onsite.
- Undertake quarterly noise during the first year.
- Tollbox meetings prior to shift to discuss noise controls measures that may be implemented to reduce noise emissions to the community.
- All plant will be idled or shut down when not in use
- Conduct regular maintenance on plant to avoid unnecessary operation noise.

4.2.6. Equipment and Vehicles

- Heavy vehicles hydraulic and fuel systems subject to a maintenance program; and
- Spill kits inspected for contents and replenished if used/required.

5. PIRMP ACTIVATION

5.1. Bush Fire activation management plan

The site is within the bushfire prone area, personnel within the site have a substantial buffer between the vegetation and the activities undertaken.

5.2. Evacuation Plan activation procedure

In the event of an environmental or pollution event which has the potential to cause harm to the environment or individuals / contractor, the principal contractor engaged by CSR has adopted an emergency response plan which upon activation will trigger the procedures as outlined in the document found in appendix 3. This is reinforced via toolbox and an annual drill conducted by the principal contractor.

5.3. PIRMP Response Team

The PIRMP will be activated in the event of an incident causing or potential to cause material harm by the authorised response team list in Table 3. Pending the nature and severity of a pollution incident, there may be a requirement to engage external specialist assistance and contact details are also provided in Table 3.

Table 3: PIRMP Team Roles and Responsibilities

PIRMP Response Team	Roles & Responsibilities	Contact Details
<u>Nelma Arancibia</u> <u>(Development Manager)</u> (Available 24hrs)	• Receives internal notification of an incident and response updates • In collaboration with National WHSE Manager notifies Authorities and provides updates • Coordinates with Emergency Services if providing on-site response assistance •	Mobile: 0424 186 127 Email: narancibia@csr.com.au
<u>Blake Newell</u>	• Provides immediate response in accordance Table 4 Actions with using with appropriate PPE	Mobile: 0407 794 068

<u>(Project & Quarry Manager)</u>	• Communicates incident and response status Development Manager • Assist with the coordinates with Emergency Services if providing on-site response assistance • Ensures appropriate response resources are maintained and replenished after the incident • Assist with incident investigation and implementation of learnings • Assist with PIRMP review after incident	Email: blaken@mulgoaq.com.au
Cleanaway	Assistance with emergency response and clean-up of significant spill events if required	Emergency Spill Hotline 1800 SPILLS
ERM	Provides soil sampling, water sampling (creek sampling up and down stream)	0427 263 717

5.4. PIRMP Actions

Table 4 details specific PIRMP actions in response to potential pollution incidents associated with each of the locations detailed in Figure 1.

Table 4: PIRMP Actions

Pollution Incident	PIRMP Action	Post-PIRMP Action
No.1: Catastrophic failure of Site Dams – see Figure 1. There is potential for contaminated and sediment laden water to be discharged beyond Site boundaries and into water courses (i.e., Badgerys Creek) If chemical in its self-bunded container fails	• Contact all relevant Authorities (refer to Section 5.1) and provide periodic updates • Contact local neighbours (refer to Section 5.2) with potential to be in inundated by water and provide periodic updates • Area to be restricted to PIRMP Response Team and Authorities engaged in incident response • Co-ordinate with Authorities (if responding to incident) • Instigate traffic controls if off-site roadways are likely to be impacted • Divert water flow away from sensitive receptors (i.e., neighbours, Badgerys Ck, other dams and roadways) • Pump water to other Site Dams (areas) to reduce level • If any release from Site onto unsealed soil/surface water - Environmental Consultants to be engaged to investigate and remediate contamination • Implementation of relevant Principal Contractor PCPs, PHMPs and Site Safety Management Controls (Refer to Appendix)	• Provide update to all Authorities and neighbors contacted during the incident • Contact engineers/contractors to rebuild Dams immediately and clean-up any off-site impacts • Engage Environmental Consultants to investigate possibility of chemical contamination and remediate as required impacts to soil, groundwater and surface waters (i.e., Badgerys Creek) • Assess Duty to Report contamination to EPA under S60 of the <i>Contaminated Land Management Act (1997)</i> • Investigate incident and review PIRMP within 30-days of incident • Check and replenish response equipment/resources • Dispose of contaminated response material through licensed contractor • Implement incident investigation learnings • Communicate investigation and corrective actions to Authorities and neighbors
No 3: Extreme dust event associated with rehabilitation and Stockpiles - see Figure 1.	• Contact all relevant Authorities (refer to Section 5.1) and provide periodic updates • Contact local neighbours (refer to Section 5.2) with potential to be adversely impacted by dust emissions and provide periodic updates • Cease activities contributing to dust emissions • Increase dust controls such as water cart operation and sprays	• Provide update to all Authorities and neighbors contacted during the incident • Offer clean-up of houses and cars impacted by dust emissions • Investigate incident and review PIRMP within 30-days of incident • Implement incident investigation learnings

There is potential during extreme weather events that dust from civil works may adversely impact upon the surrounding environment and amenity of neighbours	• Consider if additional water cart or other controls are required to further reduce dust emissions • Implementation of relevant Principal Contractor PCPs, PHMPs and Site Safety Management Controls (Refer to Appendix)	• Communicate investigation and corrective actions to Authorities and neighbors
No 4: Pollutants entering Sedimentation Dams or Pits - see Figure 1. All on-site stormwater flow toward the Sedimentation Dams or Pits. As such if any pollutants enter the Dams or Pits, water quality of the Dam must be investigated.	• Contact all relevant Authorities (refer to Section 5.1) and provide periodic updates • If there is potential for overflow during pollution incident, contact local neighbours (refer to Section 5.2) with potential to be adversely impacted by contaminated water • Stop, contain and divert any impacted stormwater from further entering Dams or Pits using spill kit and if necessary, construct earthen bund/diversions • Engage environmental consultants and incident response contractors to assist with incident response, clean-up, contamination investigation and remediation (soil and water) • Implementation of relevant Principal Contractor PCPs, PHMPs and Site Safety Management Controls (Refer to Appendix)	• Provide update to all Authorities and neighbors contacted during the incident • If spill has impacted unsealed soil/surface waters – engage Environmental Consultants to investigate and remediate as required contamination to soil, surface waters (i.e., Badgerys Creek) and if required groundwater • Engage environmental consultants to commence water quality monitoring program to assess any ongoing contamination issues • Assess Duty to Report contamination to EPA under S60 of the <i>Contaminated Land Management Act (1997)</i> • Check and replenish response equipment/resources • Dispose of contaminated response material through licensed contractor • Investigate incident and review PIRMP within 30-days of incident • Communicate investigation and corrective actions to Authorities and neighbors

6. PIRMP NOTIFICATION AND COMMUNICATION

6.1. Notification of Authorities

In the event of a pollution incident causing or potential to cause material harm, the Development Manager or Quarry Manager will notify the Authorities listed in Table 5. All Site employees and Contractors must either through inductions and training be aware of reporting any actual or potential pollution incidents directly to Site Managers.

If the incident has an immediate threat to human health or property, Emergency Services will be the first of the Authorities to be contacted as they will be able to provide initial advice and if required, on-site assistance in controlling, containing and combating incidents.

If the incident does not require emergency services, or once the triple 000 call has been made, notification of the other relevant Authorities listed in Table 5 must be undertaken.

The principal contractor site safety management plan and associated PCPs and PHMPs require that contractor personnel to immediately and promptly notify CSR Property and / or National WHSE Manager in accordance with this PIRMP so that any required notifications to Authorities and neighbours are made by CSR as the Environment Protection Licence Holder.

The information to be provided to the Authorities will include the following:

- The time, date, nature, duration and location of the incident
- The estimated quantity or volume of any pollutants involved
- An initial understanding of the circumstances in which the incident occurred
- The action taken or proposed to be taken by internal and external resources to deal with the incident and any actual or potential pollution arising from the incident

Table 5: Authority Contact Details

Authority	Contact Details.	Notification Responsibility
<u>Emergency Services</u> • Fire and Rescue NSW • NSW Police • NSW Ambulance Service	Call: 000	While the Site remains non-operational the following manager is responsible for notification to Authorities: Nelma Arancibia (Development Manager) Mobile: 0424 186 127 (Available 24hrs)
NSW EPA	131 555	
SafeWork Authority	131 050	
Liverpool City Council	1300 36 2170	
Liverpool Public Health Unit	BH: 02 8778 0855 AH: 02 9828 3000	
Origin Gas Company – Jemena Faults and Emergencies	24 hours 131 909	

Typical Information that will be requested by Authorities

1. Company name and address: PGH Bricks, 235 Martin Road, Bradfield, NSW 2556
2. Head office address: CSR, T3 Level 5, 39 Delhi Rd, North Ryde 2113
4. What happened – rough volume of liquids that left site; time incident occurred; type of liquid; possibly gone into Creek etc.; where on the map did incident occur example “western boundary – Badgerys Creek side”
5. What is being done to clean-up the problem

6.2. Communications with Neighbours and Community

In the unlikely event that neighbours or the wider community may be impacted by a pollution incident associated with Site operations, the Development Manager as deemed appropriate will either phone, email, text or door knock neighbouring residents to provide the following information:

- Nature of the incident, response being undertaken and any precautions that may be required to reduce the risk of impact on their health and amenity i.e.
 - Close windows during a significant dust event
 - Avoid driving on impacted roadways (i.e., dam overflows/fuel leaks/clearance for emergency services)
 - Avoid any dermal contact with Dam/Pit overflow water and Badgerys Creek as it may be contaminated.
- Likely duration and periodic updates on the status of the incident.
- End of incident response and any associated residual risks that may exists until appropriate clean-up/remediation can be completed; and
- Summary of incident investigation and learning to minimize a repeat of the event.
- Brief summary of incident report must be supplied to EPA within 7 days of incident occurring

Receptor	Nature of Occupancy	Direction from Site	Name
House xxx	Residential	West	XXXXXXXXXX

7. PIRMP TESTING AND TRAINING

7.1. PIRMP Testing

The PIRMP will be tested and reviewed on at least an annual basis or within a month (30 days) of a pollution incident occurring at the Site. A summary report will be prepared for each PIRMP test that will detail results and learnings against the scope and actions presented in Table 6.

Table 6: Scope and Actions of PIRMP Tests

Scope / Action
Include PIRMP Response Team and Managers representative of 24-hour Shift Operations
Response to simulated pollution incident associated with activities, equipment and materials associated with Site operations (under rain / dry / windy scenarios)
Communication and notification with Plant Managers, Authorities and neighbours/communities
Level of availability, awareness, efficiency and effectiveness in the use of incident response resources
On-site coordination with external response services/Authorities - pending incident severity
Minimizing harm to people on-site – will simulated incident require site warning alarm / evacuation
Combating/minimizing the pollution caused by incident
Discuss - Inspection, maintenance and replenishment of response equipment/materials used in responding to incident
Discuss - Clean-up and disposal of contaminated response materials through licensed contractor
Review of PIRMP to reflect any learnings from simulated PIRMP Test
Schedule next PIRMP Test

7.2. PIRMP Training

PIRMP training will be conducted through either formal awareness sessions, inductions, toolbox style presentations or simulated incidents. The frequency of training will be at least 2 yearly (whilst site is not operational) for the PIRMP response team and Site Managers. Training will also be provided to new employees and contractors through inductions and on an as required basis. A training register will be maintained detailing attendees and the manner in which training was provided.

The objective of the training will be to ensure Site Managers, incident response team, relevant site employees and contractors are aware of the pollution risks associated with operations, response equipment and materials and they know of their roles and responsibilities in the administration and activation of the PIRMP.

Toolbox talks and task-based briefings delivered under the principal contractors PCPs and PHMPs are used as a key mechanism for communicating the PIRMP requirements and pollution incidence response expectations to contractor personnel.

7.3. PIRMP Training and Testing Schedules

Routine PIRMP training and testing will be conducted in accordance with dates and scope presented in Table 7.

Table 7: Completed and Scheduled PIRMP Training and Tests

Date	Test / Training	Scope	Status
06/10/2016	Test	Desktop - Simulated Spill	Completed
06/10/2016	Training	POEO Act/Regulation Requirements	Completed
12/11/2021	Training	Desktop – simulation spill	Completed
01/11/2022	Training	Desktop – simulation spill	Completed
01/10/2024	Training	Desktop – simulation spill	Completed
06/08/2025	Training	Emergency Drill	Completed
06/08/2025	Consultation	On Site Consultation regarding management plans	Completed

APPENDIX 1: Electrical Engineering Management Plan

	ELECTRICAL ENGINEERING MANAGEMENT PLAN	Approved By: Mining Manager	Reference: EEMP Date: 4/11/2025
Revision Number: 02			Page 1 of 49

ELECTRICAL ENGINEERING MANAGEMENT PLAN



BADGERYS CREEK QUARRY

DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	13/08/2025	Review and Updates following Risk assessment reviews	BN
2.	4/11/2025	Review and Updates following Risk assessment reviews	BN

 MULGOA QUARRIES EST. 1964	ELECTRICAL ENGINEERING MANAGEMENT PLAN	Approved By: Mining Manager	Reference: EEMP Date: 4/11/2025
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Electrical Emergencies

Emergency Services (Ambulance, Fire, Police)	000
UHF	74
Electricity Supply Authority	General – 131 535 Emergency – 131 388
Location Address:	325 Martin Road, Badgerys Creek
Nearest Cross Street:	Elizabeth Drive
GPS Coordinates:	-33.89454 150.75754
Directions to Site:	End Of Martin Rd, Concrete Driveway

Electric Shock or Electrocution

- Refer to Person Contacts Electricity Emergency Response Procedure.
- All electric shocks are potentially fatal and should be treated as such. Treatment must be sought immediately as complications can occur up to several hours after the shock.
- All instances of electrical shock shall be immediately reported to the Site Engineer/Supervisor or their delegate.

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Electrical Fire

Where an electrical installation or equipment is or appears to be on fire:

- disconnect the electrical installation or equipment from the electricity supply if safe to do so, and
- Then proceed in accordance with the established response to fire.

Mobile Plant in Contact with Electricity

- Where mobile plant contacts an energised (live) overhead electric lines or underground electric cables the Plant Contacts Overhead or Underground Electric Lines Emergency Response Procedure must be applied.
- Keep clear of all power lines and cables and keep all other people clear. The electrical supply authority's emergency service must be notified on the applicable telephone number from the list above.
- If a fire results refer to Section Electrical Fire 0 above.

Incident Reporting & Scene Preservation

Electric shock and many of the other potential consequences of contact with electricity are regulator notifiable incidents and as such the incident scene must be preserved except for disturbances necessary for providing assistance to injured persons.

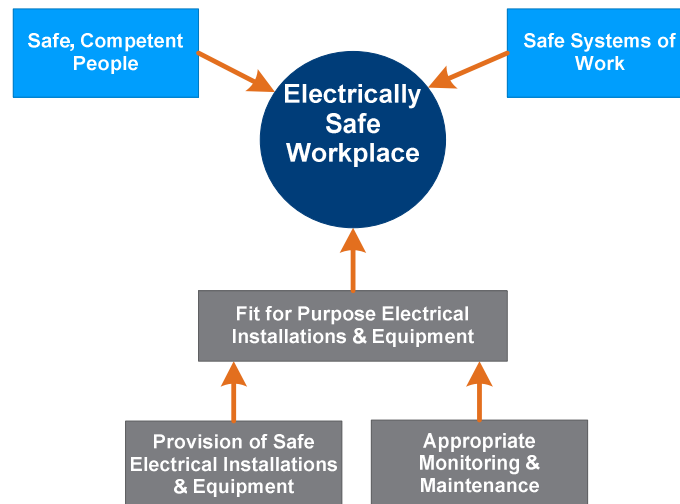
Policy Statement

The Health and Safety Policy and Mine Safety Management Plan are endorsed by the General Manager of Mulgoa Quarries Pty Ltd. The safety and welfare of our people is our most important responsibility. We are committed to operating our businesses in a manner which ensures that all our workers, contractors, visitors and the communities in which we operate are free from harm, injury and illness.

Mulgoa Quarries Pty Ltd is committed to achieving an electrically safe workplace based on:

- Providing and maintaining electrical installations and equipment that is fit for purpose and safe to use
- People who are competent to work safely with electrical installations and equipment
- Electrically safe systems of work

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Every electrical safety incident or accident must be reported and investigated in accordance with the company's policies and procedures.

1. PURPOSE

The purpose of this document is to eliminate potential fatalities, injuries and incidents arising from the risks created by electricity during the use of electrical installations and equipment and during the execution of electrical work at workplaces controlled by Mulgoa Quarries Pty Ltd.

This standard is intended to satisfy the electrical work safety requirements of:

- NSW Work Health and Safety Act 2011
- NSW Work Health and Safety Regulation 2017,
- NSW Mines Health and Safety Regulation 2013,
- NSW Mines Health and Safety Regulation 2022,
- NSW DPI Technical References relating to electricity

This standard is not intended to address risks to workers from damaging energies other than electricity (e.g., gravity, radiation, machinery, chemicals, and dangerous atmospheres) unless a requirement particular to electrical work is required.

2. SCOPE

This document applies to:

- All workplace use of electrical installations and equipment
- All electrical work (including supply, installation, commissioning, maintenance and repair of electrical installations and equipment)

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- All electrical installations and equipment owned or leased by Mulgoa Quarries Pty Ltd or brought onto a Mulgoa Quarries place of work by contractors (or their subcontractors) to Mulgoa Quarries Pty Ltd
- All workers of Mulgoa Quarries Pty Ltd and all workers of contractors (and their sub-contractors) to Mulgoa Quarries Pty Ltd

3. ELECTRICAL SAFETY REQUIREMENTS FOR ALL WORKERS

Removal & Restoration of Electrical Power

Removal and restoration of electrical power include:

- Removal of power at the completion of the workday (i.e. shut site down),
- Switching on electrical power supplies at the start of the workday (start-up procedures),
- Making and removing isolations in accordance with the site isolation procedures,
- The automatic removal of electrical power under electrical fault conditions (i.e. the operation of electrical protection devices), and
- Reset procedures to restore power after an electrical protection device has tripped.

Removal and restoration of electrical power does not include electrical equipment or appliances connected via 240 Vac or 415 Vac socket outlets.

Restoration (i.e. resetting) of electrical power does not include the re-setting of an RCD unit when it has tripped in response to the operation of its test button.

- Only competent workers who are authorised to do so must remove or restore electrical power supplies at the mine site.
- Only competent workers who are authorised to do so must reset electrical protection devices at the mine site.
- A register of workers authorised to execute electrical power removal and/or restoration must be maintained as detailed in Section 0
- Electrical power removal and/or restoration by authorised workers must be carried out in accordance with the Company's Electrical Power Removal and Restoration Procedure.
- The Site Electrical Representative must conspicuously post, at all electrical power removal and restoration locations, copies of all relevant instructions relating to the electrical power removal and restoration process (e.g. switching instructions, generator start-up and shutdown process).

Access to Electrical Installations & Equipment

- Electrical equipment rooms and enclosures are provided with key or tool secured means of access to prevent unauthorised persons from entering.
- Electrical workers are responsible for securing their worksite against unauthorised access during the execution of their work and at the completion of their work.
- Electrical equipment room/enclosure access keys must be issued only to competent workers.

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- A register of electrical room/enclosure access keys issued must be maintained as detailed in Section 0
- Workers issued an electrical equipment room/enclosure access key are responsible for the security of the key and must not give the key to another worker for any reason.
- Where non-electrical workers have a need to access to electrical rooms or areas shared by electrical and other plant those non-electrical workers must undergo the company's Induction for Access to Electrical Areas for Non-Electrical Workers prior to being given access to these areas.
- Clear, safe access to and egress from electrical enclosures is essential in emergency situations and is a statutory requirement.
- Workers must not block the access and egress ways of electrical enclosures in any way.
- Electrical switch rooms must not be used as storage areas for electrical or non-electrical equipment or materials.



Figure 1 Blocked Access to Switchboard (left) & Emergency Exit from Electrical Switch room Blocked (right)

Safe Use of Electrical Installations & Equipment

General Requirements

- No worker must use or operate an electrical installation or equipment unless they are competent to do so.
- Electrical installations and equipment must only be used for their intended purpose (refer to the OEM instructions and/or an applicable SWMS, SOP or WI).
- Electrical installations and equipment must always be used in accordance with the OEM instructions.
- All electrical installations and equipment must be visually inspected by the intended user for damage or faults (within the competency range of the worker executing the inspection) prior to each use and at the completion of use.

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Damaged or Unsafe Electrical Installations & Equipment

- No worker must use or operate a damaged or otherwise recognisably unsafe electrical installation, equipment or appliance.
- Any worker recognising:
 - a flexible cord and plug connectable item of electrical equipment with an out of date test tag or no test tag, or
 - a damaged or otherwise recognisably unsafe item of electrical equipment,

must disconnect the electrical equipment from the electricity supply (if safe to do so) and follow the Out of Service Tag process described in the Company's Isolation, Lockout and Tagging Instruction. HQGMS-COR-401.3 Isolation and Tagging Procedure

Working With or Near to Electrical Equipment Enclosures

Electrical equipment is often enclosed to prevent accidental contact with live parts and to ensure reliable operation of the equipment. The enclosures have varying degrees of protection against the ingress of solids or liquids.

The minimum degree of protection against ingress by solids (including parts of a person) for electrical equipment enclosures usually prevents access by the average human finger (the 'test' finger is 12 mm diameter). This degree of protection is often provided on electrical equipment enclosures requiring ventilation openings. As a 12 mm opening will allow the ingress of objects less than 12 mm diameter caution is required if your work near this equipment creates grit, dust, fumes or other particles less than 12 mm diameter and the electrical equipment may need protection against ingress of this material.



Figure 2 Ventilated electrical enclosures are at risk of ingress by solids or liquids

Outdoor electrical equipment enclosures (and some indoor ones) are provided with enclosures that are protected against the ingress of water ranging from drips or splashing to rain or hosing.

- Regardless of the degree of protection against the ingress of liquids provided by an electrical equipment enclosure the deliberate hosing, splashing, washing or otherwise wetting of an

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electrical enclosure with liquids must be avoided unless the electrical equipment is isolated and the liquid is applied in accordance with a specific WMS, SOP or WI.

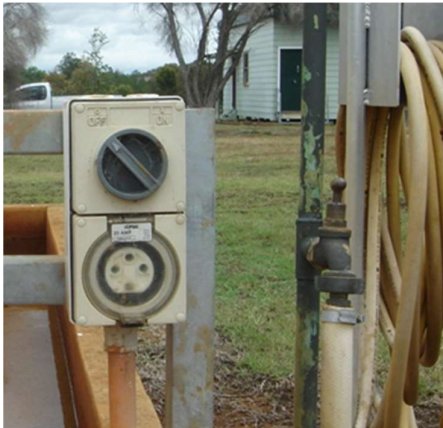


Figure 3 Water/weather protected electrical enclosures must not be unnecessarily hosed or washed down

Electrical equipment enclosures subject to electrical work may be within an area delineated by warning or danger tape.

- No worker must enter an electrical equipment area that is delineated with warning or danger tape unless the worker has contacted the worker in charge of the work and been authorised to enter the delineated area.

Plug Connected Equipment & Use of RCD's

- No worker must use or operate an electrical appliance or equipment that connects to the electricity supply via a flexible cord and plug unless the device carries a current electrical safety test tag. (The currency of a test tag expires at the date recorded on it in the 'Next test due' field; see Figure 1 Figure 4 below.)



Figure 4 Typical electrical safety test tag with 'Next test due' date circled

- Flexible cord and plug connectable electrical equipment operating at 240 Vac must only be connected to electrical outlets that are protected by a residual current device (RCD). The RCD must be rated at a trip current of more than 30 mA.

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- If RCD protection of an outlet intended for use cannot be confirmed the electrical equipment must be connected to the electrical outlet via a portable RCD. The portable RCD should preferably be rated at a trip current of 10 mA and must not be rated at a trip current of more than 30 mA.
- Portable RCD's must be confirmed as operative by operation of their 'test' button prior to each use.



Figure 5 Switchboard RCD unit (left) and Fixed socket outlet with RCD Unit (right)

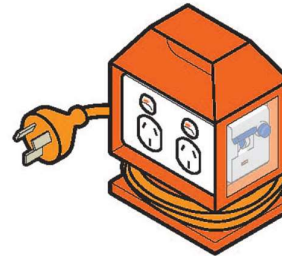
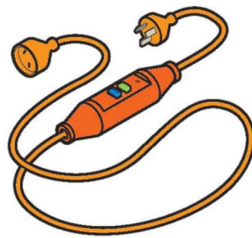


Figure 6 Portable in cable RCD (left) and Portable RCD protected power board (right)

- Connections made to a weather/water protected electrical outlet must be made with a flexible cord provided with a weather/water proof plug cover to match the outlet.
- Any extension cords used in conjunction with a connections made to a weather/water protected electrical outlet must be provided with and utilise weather/water proof plug and socket covers.



Figure 7 Weather/water protected outlet and mating plug (left) and Weather/water protected extension cable connection (right)

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- Extension cords should not be used while in a coiled or reeled configuration.
- Extensions cords more than 4 m in length or that are not in view of the person using the attached electrical equipment must be installed such that the extension cord:
 - is raised off the floor,
 - is supported on a non-conductive surface, and
 - is not subject to water or mechanical or thermal damage.
- For general use, extension cords (single or multiples connected) must not exceed the lengths specified in Table 1.

Rated Current (A)	Conductor Area (mm ²)	Maximum Length (m)	
		Single phase 3 core cable	Three phase 4 core cable
10	1.0	25	50
	1.5	35	70
	2.5	60	120
	4.0	100	200
15/16	1.5	25	50
	2.5	40	80
	4.0	65	130
	6.0	100	200
	1.0	170	340
20	2.5	30	60
	4.0	50	100
	6.0	75	150
	10	130	260

Table 1 – Maximum Allowable Lengths of Extensions Cords (from AS 3012 – 2010)

- Double adapters and piggyback plugs must not be used.
- Power boards must be of the type fitted with an overload device and must be installed such that the neither the power board nor its flexible cord is exposed to water or mechanical or thermal damage.
- Where electrical equipment is connected to 240 Vac electrical outlets provided on portable welding machines or inverters the electrical equipment must be connected and used in accordance with Safe Use of Generators Procedure.

Portable Electric Hand Tools

- Battery operated or air operated hand tools must always be considered for use in preference to low voltage (240 Vac) electrical hand tools connected to a socket outlet.
- Where the use of low voltage (240 Vac) electrical hand tools cannot be avoided:
 - all risks associated with the use of low voltage electricity in the specific work situation must be identified, eliminated or minimised, and recorded on a HQGMS-SF-401.4 Risk Assessment Template and
 - the hand tool should preferably be connected by a 10 mA RCD (fixed or portable).
- All portable electric hand tools must be stored in a manner and location such that the tool and its flexible cable are not exposed to water or mechanical or thermal damage.

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Pendant Controls

- Before use workers must confirm that:
 - the pendant is effectively supported by the strain relief wire and that unnecessary strain is not applied to the cable, and
 - The cable is not pulled out of its connection point at the pendant or the electrical enclosure to which the pendant connects.
- Workers must stow pendants after use in a manner where they are protected from water and mechanical and thermal damage.

Unused Electrical Installations & Equipment

- Any electrical installation or equipment that is not in use should be shut down and, if necessary, isolated so that it does not create a risk to the health or safety of any person.

Overhead Electrical Lines

Overhead electrical lines owned by the company, an electricity supply authority or another entity may be installed on the company's sites. The overhead electric lines may be energised at high voltage or low voltage.

- Overhead electrical lines should always be treated as live unless owner of the electric lines has verified that they have been de-energised or isolated.
- You don't have to have a direct contact with a high voltage (HV) overhead electrical line to receive a fatal electric shock. Simply being too close can be fatal
- All overhead lines on the company's sites must be shown on a specific Overhead Electrical Lines Site Plan which is issued and maintained as a controlled document by the Site Manager.
- The Overhead Electrical Lines Site Plan must include:
 - the location of plant and buildings at the site,
 - the location of the overhead electrical lines and their poles/towers,
 - any associated easements,
 - pole and tower identification numbers,
 - the voltage of the overhead electrical lines,
 - ownership of the overhead electrical lines and associated electrical equipment,
 - roadways and trafficable areas under the overhead electrical lines,
 - safe clearance height of the lines over roadways and trafficable areas,
 - location of any 'goal posts' or similar anti-collision devices installed and their clearances,
 - points of emergency isolation, if applicable
- Maximum clearance signage must be provided at the roadside approaches to all points where overhead power lines cross roadways. The signs must be conspicuously located, durable and legible from a passing vehicle in all weather conditions.

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- Overhead electrical lines must be highlighted by markers attached to the lines where 'goal posts' or similar anti-collision devices are not installed the.
- Site operational planning must consider the location of overhead electrical lines at the site and minimise mobile plant crossing under and working near the lines.
- Operational activities should maintain a minimum separation of 10 m from overhead electrical lines
- Site traffic management planning must consider overhead electrical line locations and clearances.

Overhead Electrical Lines Crossing Roadways

Table 2 provides approach distances for vehicles, mobile plant stowed for transit or with a design envelope up to an including 4.6 m in height, which are driven by or operated by persons under overhead electric lines.

When assessing the approach distance for a vehicle driven under overhead power lines a number of factors should be taken into account including:

- the approach distances specified in
- **Table 2** are based on the fact that the design or transit envelope of the vehicle does not allow any part of the vehicle to come closer than the approach distances specified. This includes the load, exhaust pipe and attachments such as rotating/flashing lights or radio aerials. Refer to Figure 8 below.



Figure 8 Transit Envelope – The maximum overall height of the vehicle

- Where a work activity involves a person working from, standing on or walking across the top of a vehicle the relevant approach distance specified for ordinary or accredited persons and the appropriate line voltage must be maintained. This may include a person accessing a load on a vehicle during loading/unloading.
- where, as a result of the work being performed the distance between the conductors and the ground may decrease (for example when constructing work or back filling causes the ground level to be raised), then the distance between the vehicle must be continually re-assessed to ensure that the relevant approach distances are being maintained.

Nominal phase to phase ac voltage (Volts)	Approach distance (m)
Low Voltage conductors up to 1000	0.6
Above LV, up to and including 33,000	0.9
Above 33,000 up to and including 132,000	2.1
Above 132,000 up to and including 220,000	2.9
330,000	3.4
500,000	4.4

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**Table 2 Approach Distances for Road Transport Vehicles Passing Under Electric Lines
(From Safe Work Australia, Working in the Vicinity of OH & UG Electric Lines, COP (Draft), Table 1)**

Safe Work near Overhead Electrical Lines

Electrical and non-electrical workers may have to work near electrical installations and equipment such as overhead power lines, pole mounted transformers or switchgear or underground cables.

Work near overhead and underground electric lines is work where there is a reasonable possibility a person either directly or through a conducting medium will come within an unsafe distance of energised electric lines. The term ‘near’ can be interchanged with other legislative or commonly used industry terms such as ‘close proximity’, ‘unsafe distance’ or ‘in the vicinity of’.

- All work near overhead electric lines must only be carried out after the company’s work task related risk management requirements have been carried out.
- Before any work near overhead electric lines is carried out consultation must have taken place with the parties specified in Sections □o□□ and □o□□
- Work near overhead and underground electric lines must be:
 1. planned and carried out with the overhead electric lines isolated, or where this is not reasonably practicable,
 2. planned and carried out such that all workers and plant remains separated from overhead electric lines by at least the ordinary person approach distance for the electric line type and operating voltage specified Section □o□□ or where this is not reasonably practicable,
 3. planned and carried out such that all only accredited workers and plant operated by accredited workers may come closer than the ordinary person approach distance but always remain separated from the overhead electric lines by at least the accredited person approach distance for the electric line type and operating voltage specified Section □o□□.
- No person must make contact with plant operating near to overhead or underground electric lines (other than the plant operator) or a load suspended by or attached to the plant.

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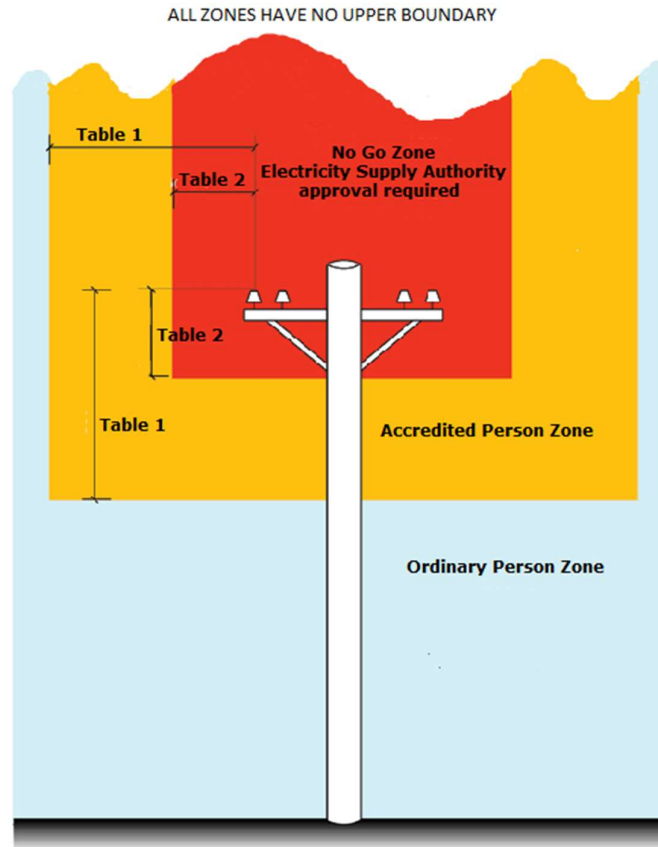


Figure 9 Overhead Electric Line Safe Approach Zones Relative to Worker Competency

- Figure 9 indicates the safe approach zones for workers, plant and loads for work near overhead electric lines relative to the level of competency of the workers carrying out work.
- The zones of Figure 9 have no upper boundary so all work above the overhead electric lines must be limited to the horizontal (ie, from the side) approach distances relative to the level of competency of the workers carrying out work.
- The relevant approach distances vary with the voltage of the overhead electric lines and are set out in Table 1 for ordinary persons and in Table 2 for accredited persons.
- Line Sag & Swing - When establishing safe approach distances line sag and swing must be considered. Overhead electric lines sag between poles by design and the sag can increase as the conductors heat due to ambient temperature increases or load increases. Overhead electric lines can swing due to the influence of wind or fault conditions.

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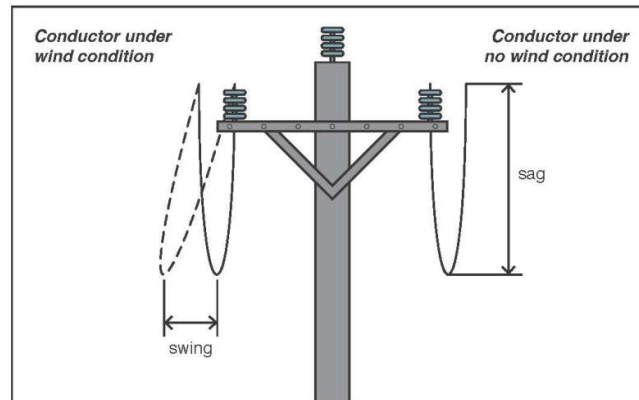


Figure 10 Overhead Electric Line Sag and Swing

- **Work Carried out by Ordinary Persons**
- Table 1 provides approach distances for:
 - ordinary persons performing work near overhead electric lines, (including plant, hand tools, equipment or any other material held by a person), and
 - cranes (and their loads) and items of mobile plant operated by an ordinary person near overhead electric lines.
- Where a written risk assessment determines it necessary, a safety observer must be used for work performed by ordinary persons working outside of but up to the approach distances specified in Table 3

Nominal phase to phase ac voltage (Volts)	Approach distance (m)
Up to and including 132,000	3.0
Above 132,000 up to and including 330,000	6.0
Above 330,000	8.0
Nominal pole to earth dc voltage (Volts)	Approach distance (m)
Up to and including +/- 1500 Volts	3.0

Table 3 Approach Distances for Work Performed by Ordinary Persons
(From Safe Work Australia, Working In the Vicinity of OH & UG Electric Lines, COP (Draft), Table H5)

- Work near overhead electric lines by ordinary persons outside of but up to the approach distances specified in Table 3 must not be carried out until the following external parties have been consulted in respect to the proposed work:
 - For Company owned Overhead Electric Lines – No external consultation required (based on task risk assessment processes being carried out and Permit to Work system in place for significant tasks)

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- For Electricity Supply Authority Overhead Electric Lines – No external consultation required (based on task risk assessment processes being carried out and Permit to Work system in place for significant tasks)
- For any Overhead Electric Lines on private property – Consultation with the person in control of the property.

▪ **Work Carried Out by Accredited Persons**

- Table 2 provides approach distances for:
 - Accredited persons, with a safety observer who are performing work Near overhead power lines (including plant, hand tools, equipment or any other material held by a person), and
 - cranes (and their loads) and items of mobile plant operated by an accredited person with a safety observer near overhead power lines.
- The approach distances in Table 4 are based on:
 - completion of a job specific written risk assessment prior to the commencement of work,
 - application of a safe system of work, which includes the use of a safety observer, and
 - compliance with any conditions imposed by the Electricity Supply Authority with control of the overhead electric lines impacting on the work.

Nominal phase to phase ac voltage (Volts)	Approach distance (m)
Insulated Low Voltage cables up to 1000, including LV ABC	0.5
Un-insulated Low Voltage conductors up to 1000	1.0
Above 1000 up to and including 33,000	1.2
Above 33,000 up to and including 66,000	1.4
Above 66,000 up to and including 132,000	1.8
Above 132,000 up to and including 220,000	2.4
330,000	3.7
500,000	4.6

Table 4 Approach Distances for Work Performed by Accredited Persons
(From Safe Work Australia, Working In the Vicinity of OH & UG Electric Lines, COP (Draft), Table H6)

- Work near overhead electric lines by accredited workers outside of but up to the approach distances specified in Table 4 must not be carried out until the following parties have been consulted in respect to the proposed work:
 - For Company owned Overhead Electric Lines – Consultation with the Site Electrical Representative or their representative.
 - For Electricity Supply Authority overhead electric lines - Consultation with the Electricity Supply Authority,
 - For any overhead electric lines on private property – Consultation with the person in control of the property and the Electricity Supply Authority with control of the lines.
- Competencies for Accredited Person:

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- The Company must provide training and competency assessments for employee workers required to work and/or operate plant near to overhead electric lines within the accredited person zone.
- Contractor companies must provide training and competency assessments for their employee workers required to work and/or operate plant on contracts near to overhead electric lines within the accredited person zone.
- The Site Electrical Representative or their representative must ensure the maintenance of records of competency for all Company workers accredited to work and/or operate plant near to overhead electric lines within the accredited person zone as detailed in Section 0.

Mobile Plant Operated Near Overhead Electric Lines

- When plant is operated near (including under) overhead electric lines the full working envelope of the mobile plant must be considered when assessing the job risks so that the approach distance of the mobile plant relevant to the operator's competency is not at risk of being breached. This may require the limiting of raising/hoisting and/or slewing motions of the mobile plant with:
 - mechanical stops or interlocking of the motion of the crane or mobile plant to prevent it from being moved within the approach distance,
 - mechanical constraints on the jib, boom, or other part of the crane or mobile plant likely to contact energised overhead electric lines or associated electrical equipment as a result of surge or backlash of hydraulic operation, or
 - using cranes or mobile plant fitted with programmable zone limiting devices. If a zone limiting device is used the interlocking and/or warning system should be designed with a safety integrity commensurate with the risks of contacting the electric lines.



Figure 11 Consideration of Mobile Plant Vertical Operating Envelope

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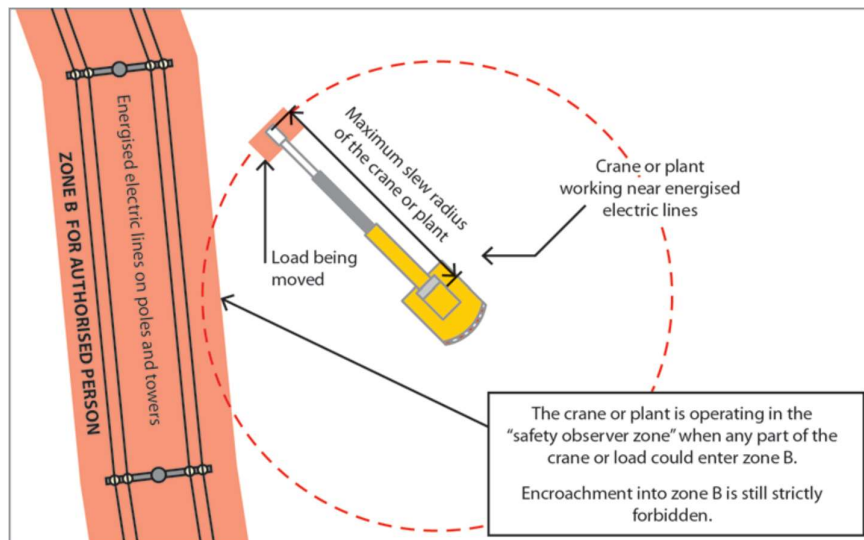


Figure 12 Consideration of Mobile Plant Horizontal Operating Envelope & Use of Safety Observer to Limit Plant Slewing

- **Earthing Systems for Cranes & Mobile Plant.**
 - The chassis of a crane or item of mobile plant may, where practical, be earthed and bonded.
 - The Site Electrical Representative and the Electricity Supply Authority must be consulted in respect to the earthing of a crane or item of mobile plant.
- **Workers in Contact with Cranes, Loads or Mobile Plant.**
- When a cranes, loads or mobile plant are operating within the Accredited Person Zone no one should remain in or make contact with any part of the crane, load or mobile Plant and the ground or another Earthed situation unless extra risk controls are in place to prevent electric shock.
- If the plant operating within the accredited person zone is of the type where the worker operating the plant stands on the ground to operate the plant the worker operating the plant must only handle the controls if:
 - the OEM's documentation states that the controls are effectively Insulated to protect the operator, or
 - the controls are of the wireless remote type, or
 - the energised electrical equipment is low voltage, AND
 - the worker is wearing low voltage insulating gloves, or
 - the worker is standing on a clean and dry rubber insulating mat at least 900 mm x 900 mm x 6 mm thick and compliant with AS/NZS 2978 Insulating mats for electrical purposes, or
 - the operator stands on an equipotential conductive mat which is electrically connected to all metalwork associated with the controls.
- All other workers must keep clear of the plant & load unless they are essential to the operation and competent to work in the accredited person zone, e.g. dogger, people helping to set up the plant or the plant operator.

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- If it is essential that a worker contact the plant or load while standing on the ground or in an earthed situation at least one of the following risk controls must be utilised:
 - the energised electrical equipment is low voltage, AND the worker is wearing low voltage insulating gloves, or
 - effective insulation is provided on the overhead electric lines or electrical equipment, or the crane, load or mobile plant or it's parts to ensure that even if it contacts the overhead electric lines or electrical apparatus, no-one would receive an electric shock, or
 - The load is controlled by non-conductive tail ropes, with insulating properties appropriate to the maximum electric line voltage, whenever uncontrolled motion could allow the load to come within the no go zone, or
 - The worker is positioning or removing lifting gear from a crane hook or the load while it is stationary, or
 - The worker is adjusting outriggers, jacks, packing's, chocks or similar, AND the crane, load or mobile plant is not being moved at that time.
 - Voltages Induced By Electric Fields
- When working near to overhead electric lines energised at voltages exceeding 132,000 Vac dangerous voltages can be induced in the metallic parts of mobile plant or metallic construction materials especially long lengths of metallic construction materials.
- Before any mobile plant is operated or metallic construction materials are handled near to overhead electric lines energised at greater than 132,000 Vac the Site Electrical Representative or their delegate must be advised of the work in writing and consulted for risk management advice.

Scaffolding Erected Near Overhead Electric Lines

- The erection, dismantling and use of fixed scaffolding near overhead electric lines and associated electrical apparatus with an operating voltage up to and including 33 kVac must maintain an approach distance of at least 4 m. For scaffolding work above 33 kVac the Electricity Supply Authority must be consulted and any special conditions imposed by the Electricity Supply Authority must be complied with.

Nominal phase to phase ac voltage (Volts)	Approach distance (m)
Up to and including 33 kVac	4.0
Greater than 33 kVac	Consultation with Electricity Supply Authority Required

Table 5 Approach Distances for Scaffolding
(From Safe Work Australia, Working In the Vicinity of OH & UG Electric Lines, COP (Draft), Section 6.4)

- If the need to erect scaffolding near to overhead electric lines arises at a Company site the work must be risk managed in accordance with the Safe Work Australia, Working In the Vicinity of Overhead & Underground Electric Lines, Code of Practice and AS/NZS 4576 – Guidelines for Scaffolding.

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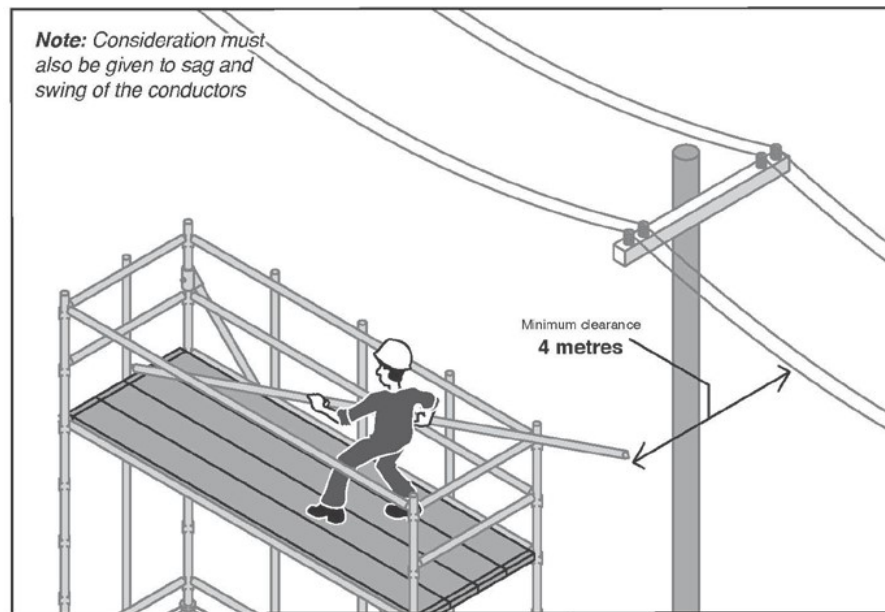


Figure 13 - Scaffolding Clearance from Overhead Lines

Vegetation Control near Overhead Electric Lines

- Whenever practicable vegetation control near overhead electric lines must be carried out with the lines isolated.
- Vegetation control near energised overhead electric lines must only be carried out by workers with the competency UET20312 - Certificate II in ESI - Powerline Vegetation Control, who have been authorised by the Site Electrical Representative or their delegate
- Vegetation control near overhead electric lines must only be carried out using fit for purpose plant and equipment.
- The Site Electrical Representative or their delegate shall ensure that competency and authorisation records relating to workers authorised to carry out vegetation control near overhead electric lines are maintained as detailed in Section 0

Underground Electrical Lines

- Underground electrical cables owned by the company, an electricity supply authority, a telecommunications company or another entity may be installed on the company's sites. The underground electrical cables may be energised at high voltage or low voltage.
- Underground electrical cables should always be treated as live unless owner of the cables has verified that they have been de-energised or isolated.
- All underground electrical cables on the company's sites must be shown on a specific Underground Electrical Cables Site Plan which is issued and maintained as a controlled document by the Site Electrical Representative.
- The Overhead Electrical Lines Site Plan must include:

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- the location of plant and buildings at the site,
- the location of the underground electrical cables and associated pits or sumps,
- any associated easements,
- the voltage of the underground electrical cables,
- ownership of the underground electrical cables,
- depth of burial,
- points of emergency isolation, if applicable
- The Underground Electrical Cables Site Plan must be consulted
- 'Dial Before You Dig' must be contacted on 1100; online enquiry at www.1100.com.au prior to all excavations (at least 5 days' notice is required).
- Before commencing excavation work at a Company controlled workplace an Excavation Permit - HQGMS-SF-025.1 must have been issued for the work and the existence and location of all underground electrical cables must be ascertained.
- Cables must be located with a cable locator and their positions marked on the surface before excavation commences. If locations cannot be clearly ascertained potholing must be used. If any uncertainty exists in relation to underground cable locations the Site Electrical Representative must be contacted.
- All of the requirements of any relevant Electricity Supply Authority or telecommunications entity must have, prior to commencement of work:
 - been established,
 - be fully understood, and
 - Been implemented.
- Telstra's requirements re cables plans, Approach distances and safe digging can be found at <http://www.telstra.com.au/abouttelstra/advice/dig/#>.
- Where the excavation will be within 10 m of the perimeter of an outdoor or indoor electrical substation or a HV cable easement the excavation work must not commence unless approval for the work has been obtained in writing from the Site Electrical Representative. Machine excavation, if allowed after risk assessment, must be carried out with a toothless tool.

Safe Use of Electric Welding Machines

Using electrical welding equipment involves a risk of electric shock or electrocution. Electric shock or electrocution can occur through direct contact with the electrode, live parts, the work piece, or through contact with a device such as an unearthed cable or tool. The risk of electric shock can be exacerbated through moisture and high humidity. Exposure to electromagnetic fields is also a potential hazard for workers with some medical conditions.

All electric welding machine power sources used by workers must comply with the requirements of AS 1674.2 Safety in welding and allied processes – Electrical, Section 3.2.

Wherever practicable electric welding machines powered from 415 Vac socket outlets must be protected by a residual current device (RCD) rated at a trip current of no more than 30 mA.

AS 1674.2 defines three categories of electric welding work environment based on increasing levels of risk of electric shock. Workers who use electric welding machines must apply all of the electric shock risk

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minimisation controls applicable to their work environment classification – refer to the Company’s Electric Welding Machine Safe Use Procedure.

Generator Use

Generators must be used in accordance with the Company’s Safe Use of Generators Procedure.

Construction Workplace Electrical Requirements

Work carried out in connection with the construction, alteration, conversion, fitting-out, commissioning, renovation, repair, maintenance, refurbishment, demolition, decommissioning or dismantling of a structure (including excavation work other than for mining) is defined as construction work by the NSW WHS Regulation 2011. For a further understanding of construction work refer to the Safe Work Australia, Construction Work, Code of Practice 2012.

- Construction workplace electrical installations and equipment are subject to risk and safety controls additional to ordinary workplaces
- Construction workplace electrical installations and equipment must comply with the requirements of AS/NZS 3012 Electrical installations - Construction and demolition sites.

Requirements for Electrical Work & Electrical Workers

Electrical Work Competencies

- a) Electrical work must only be carried out by competent electrical workers who are authorised by the Company to do the work
- b) Only workers with one of the following competencies must be authorised to do the company’s electrical work:

- a) A *Qualified Electrical Supervisor Certificate* (i.e. qualified electrical tradesperson),

or

- b) A *Tradesperson certificate* authorising its holder to do Electrical Wiring Work under supervision, but only if the work is done under the supervision and in accordance with the directions, if any, of a Qualified Electrical Supervisor. The Qualified Electrical Supervisor who is supervising the tradesperson must:

- give directions that are adequate to enable the work to be done correctly by the individual performing it, and
 - personally ensure that the work is correctly done.

or

- c) An *individual* who does not hold any of the competencies specified above but only when a Qualified Electrical Supervisor:
- is present at all times where the work is being done by the individual, and
 - is available to be consulted by, and to give directions relating to how the work is to be done to, the individual.

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The Qualified Electrical Supervisor who is supervising the individual must:

- give directions that are adequate to enable the work to be done correctly by the individual performing it (which, unless the Qualified Electrical Supervisor considers it unnecessary, must include directions requiring the individual to advise in detail on progress with the work), and
- be present when the work is being done and be available to be consulted by, and to give directions relating to how the work is to be done to, the individual, and
- personally ensure that the work is correctly done.

OR

d) *An Apprentice or Trainee* if:

- the course of studies undertaken as part of the persons apprenticeship or traineeship includes a study of the kind of Electrical Wiring Work the Apprentice or Trainee is doing, and:
 - a Qualified Electrical Supervisor supervises the Electrical Wiring Work being done by that apprentice or trainee, and
 - the Qualified Electrical Supervisor is of the opinion that the Apprentice's or Trainee's knowledge and experience in doing such Electrical Wiring Work is such that the Apprentice or Trainee does not need the level of supervision specified for individuals at (c) above, and
 - the Apprentice or Trainee does that work under the supervision, and in accordance with the directions, if any, of the Qualified Electrical Supervisor.
- The Site Electrical Representative or their delegate must:
 - authorise electrical Workers after establishing and verifying the Worker's competencies against those listed above, and
 - create and maintain records of electrical worker competencies and authorisations as detailed in Section 0.

Isolation

- **All Electrical Work must be carried out with the electrical installation and/or equipment isolated (i.e. de-energised) except in the specific situations detailed in Section 5**
- All electrical isolations must be verified before any work commences as specified in the Company's Isolation, Lockout and Tagging Instruction HQGMS COR-401.3 Isolation and Tagging. Note that the required isolation verification may be by voltage measurements or other means such as visible break isolator or pre/post isolation test run of motor.
- **Where the required isolation verification is to be by direct voltage measurement it is considered energised electrical work and must be carried out in accordance with the requirements of the WMS referenced in Section 5**
- All isolations must be made in accordance with the Company's Isolation, Lockout and Tagging Instruction.

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Test Before You Touch

- Electrical workers must, after the isolations for their work have been made and verified as specified above, and prior to commencing work:
 - identify any energised sources of electricity in their immediate work area by using a non-contact (inductive) electrical tester (remember only AC voltages detected), and
 - confirm the absence of dangerous voltages on the conductive circuit parts of the electrical installation and/or equipment to be worked on by a direct voltage measurement

i.e. Test Before You Touch.

- Test lamps or test pens (test screw driver) are prohibited from being used for test before you touch or for verification of isolation.
- **Note** that 'Test Before You Touch' that is **carried out after an electrical isolation has been verified and locked** out is not considered to be LV electrical work on or near energised conductors of an LV electrical installation or equipment.

Confirmation of Installation &/or Equipment to be Worked On.

- The Site Electrical Representative must develop and maintain a register of electrical drawings (including single line drawings and schematic diagrams) that detail all the electrical installations and equipment at the site.
- The Site Electrical Representative must display at each switchroom and generation plant a single line diagram of the electrical installations and equipment connected to the switchroom or generation plant.
- The single line diagrams must show:
 - the point of supply,
 - prospective fault levels of the power supplies,
 - all power circuits,
 - power supply earthing points,
 - supply transformer(s),
 - impedance of transformer(s),
 - electrical switching devices and ratings,
 - the brand and type of electrical protection devices and their operational settings,
 - associated protection device components and details, e.g. CT ratios, and
 - cable data – cross sectional area, type and length.
- Electrical work must not be commenced until the electrical worker has confirmed the actual electrical installation and/or equipment (including cables) that they have located and intend to work upon is actually the electrical installation and/or equipment specified in the related work description documentation (e.g. electrical drawings, LV and ELV electrical work permit, HV access permit, maintenance work order, SOP, WI, JSEA or SWMS).
- If an electrical worker is unsure of the identity of the electrical installation and/or equipment subject of their work description documentation they must contact their supervisor or permit issuer for assistance in making a correct identification.

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Currency of Electrical System Documentation

Electrical workers can need to rely on electrical system documentation (e.g. single line and schematic drawings) to identify risks relating to electrical hazards that are not visually obvious (e.g. voltage levels, fault current levels, multiple sources of supply) to assist them to work safely.

- Where electrical workers use electrical system documentation to assist them to work safely they must:
 - confirm the currency of the documentation if they doubt its accuracy in any way, and
 - always verify the information from the documentation by measurement, test, visual or some other applicable method before relying on the information for their safety.

Electrical Drawings

- Electrical drawings shall be revised “As Built” following the final installation and commissioning of any electrical installation, and shall be subsequently revised for any and all changes to equipment or wiring, etc. that may adversely affect the accuracy of the drawings for ongoing reference and user safety.
- Electrical drawings should be checked prior to use to establish if the drawing reflects the “As Constructed” condition of the equipment, and where possible also reviewed to check that the drawing matches the current installation. Drawings marked “As Built” shall not be taken as an accurate record when servicing constructed and commissioned equipment.
- There must be an ongoing system in place to regularly revise drawings following the initial installation or after any subsequent alteration to the electrical installation. This should be done at the earliest opportunity and all stored and accessible copies replaced with the updated version.

Drawing Access

- All relevant drawings should be readily available, at all times, to all those concerned with working, testing, commissioning or fault finding of electrical installations and equipment.
- It is recognised that storing the relevant drawings in each switch-room is not always possible or desirable, and that other storage methods are acceptable.
- The following represents a list of drawing storage methods deemed acceptable:
 - Drawings stored in the switch room:
 - Drawings shall be stored in a suitable enclosure.
 - Drawings should not be stored inside switchboards.
 - Drawings stored on a computer system:
 - Users must have 24/7 access to the computer
 - Users must have the ability to print the drawings
 - Drawings stored in a central location:
 - Users must have 24/7 access to the storage location
 - Users must be familiar with the storage system

Egress from Electrical Work Areas

- Where electrical workers work in an enclosed space e.g. switch room, walk in enclosure, fenced switchyard or cable basement they must, before commencing work:
 - Confirm that a safe, unobstructed emergency egress exists, and

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- If more than one egress route exists confirm that all egress routes are unobstructed and that all egress gates or doors are operable from the electrical worker's side of the enclosed space

Low Voltage Rescue Kits

- LV electrical work must not be carried out without an LV rescue kit being immediately available at the work location.
- Electrical workers must be aware of the location of the nearest LV rescue kit prior to commencement of any electrical work.
- Low voltage rescue kits with the contents illustrated in Figure 14 Low voltage rescue kit contents are available to all electrical workers.



Figure 14 Low voltage rescue kit contents

PPE for Electrical Work

- Electrical workers must have and wear/use the minimum Company site personal protective equipment (PPE)
- Electrical workers, unless working in an office environment and not carrying out electrical work, must always have:
 - long shirt sleeves buttoned at the cuff and not rolled up,
 - all buttons on the front closure of shirts, except the collar button, buttoned up, and
 - shirts tucked into trousers.
- Electrical workers must have and use the PPE specified in any WMS or WI applicable to the work they are carrying out.
- Electrical workers must have and use the PPE prescribed for or signposted at any particular workplace.

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- The following additional PPE must be used by electrical workers in the following specific work situations:
 - safety glasses when carrying out any electrical work,
 - full face shield, conforming with relevant parts of AS/NZS 1337 Personal eye protection, and chemical resistant gloves when working with liquid electrolyte batteries or instruments or final control elements of chemical or sewerage/waste water systems,
 - insulating gloves, of a voltage rating exceed the voltage of the circuit but not less than 650 Vac, when carrying out energised electrical work authorised in accordance with the requirements of Section 23.1. When used insulating gloves must be worn on both hands with leather gloves over them to prevent mechanical damage. If perspiration of hands occurs cotton under-gloves are to be worn. Insulating gloves must be air tested before each use by opening them out, squeezing the glove closed at the hand entry point and then checking for air leaking out of the glove.
 - insulating mats when identified as a risk control for carrying out energised electrical work authorised in accordance with the requirements of Section 23.1, and
 - arc blast protective clothing when working in a situation where arc blast has been identified as a risk.

Conductive Clothing & Jewellery

- The following must not be worn or carried by electrical workers when carrying out electrical work on or near energised electrical installations or equipment, and should be avoided for all other types of electrical work:
 - clothing made of conductive fabrics or with conductive accessories
 - conductive jewellery, and
 - conductive objects attached to belt including tools, keys, mobile phones and pagers.

Electrical Installations & Equipment

Electrical Installation & Equipment Design

- Electrical installations and equipment must be designed to:
 - AS/NZS 3000 Wiring Rules
 - AS 3007.5 Electrical Installations - Surface Mines and Associated Processing Plant
 - Design Review By Qualified Electrical Engineer
- Where the mine has a total electrical installed power at the mine exceed 1000 kW the electrical design must be reviewed by a qualified electrical engineer:
 - periodically, and
 - whenever the design is changed.
- The design review must consider:
 - load flow and fault level studies,
 - electrical protection studies,
 - compliance with AS/NZS 300 and AS 3007, and
 - all other legislative and safety aspects of the electrical design.

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▪ **Emergency Stops**

- Emergency stops must be designed for provision in locations identified by:
 - Legislation,
 - Australian Standards enforced by legislation, eg, AS/NZS 3000 Wiring Rules,
 - The designer's risk assessment of the plant, and
 - The risk assessment of the plant executed by the person with management or workplace control of the plant.
- The emergency stop requirements noted in Codes of Practice and Australian standards must also be considered when identifying emergency stop locations.
- An emergency stop must not be provided as a substitute for safeguarding measures or other safety-critical functions. Emergency stops must be designed for use as a backup measure (ie, in case of failure of plant or other safeguards).
- Emergency stop systems must be designed in accordance with the requirements of:
 - NSW WHS Regulation 2011,
 - AS/NZS 3000 Wiring rules,
 - AS 4024.1604 Safety of machinery, Part 1604: Design of controls, interlocks and guarding – Emergency stops- Principles for design, and
 - AS 60204.1 Safety of machinery – Electrical equipment of machines, Part 1: General requirements.
- Emergency stops must be designed such that they cannot be adversely affected by electrical or electronic circuit malfunction – guidance for the design of emergency stops that provide a probability of failure commensurate to the degree of risk posed by the hazard is contained in the standards listed in Appendix B :

▪ **Warning Devices**

- Where a risk assessment of plant that is remotely or automatically energised indicates that a pre-start or operational warning device is required as a risk control the designer must liaise with the person with management or control of the plant to ensure that the device to be positioned on the plant will work to best effect.
- Background noise, visibility and lighting must be considered when deciding if the warning device is to be an audible or visual device or a combination of both. Supplementary warning signage may aid the recognition of the warning devices where their recognition may be impeded by local environmental issues including background noise, visibility or lighting. Consideration must be given to whether the warning operates as a pre-start warning or a continuous warning.

▪ **Electrical Controls**

- Electrical controls must be designed such that they are:
 - identified so as to indicate their nature and function and direction of operation,
 - located so as to be readily and conveniently operated by each person using the plant,
 - located or protected to prevent unintentional activation,
 - compliant with the requirements of the WHS Regulation 2011,
 - compliant with the applicable requirements of AS/NZS 3000 Wiring Rules and the normative references of Appendix A of the standard, and
 - compliant with the applicable requirements of AS 60204.1 Safety of machinery – Electrical equipment of machines, Part 1: General requirements.

▪ **Electrical Isolation Facilities**

- The following electrical isolation facilities must be provided to prevent or remove hazards associated with the electrical installation and to allow maintenance of electrical equipment:

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- Isolators for mechanical maintenance of electrically driven plant as required by AS/NZS 3000 Wiring Rules,
- Isolators for protection against risk of electric shock as required by AS/NZS 3000 Wiring Rules,
- Specific appliance and electricity converter isolators as required by AS/NZS 3000 Wiring Rules,
- Any isolation facilities identified by the designer's risk assessment of the plant, and
- Any isolation facilities identified by the risk assessment of the plant executed by the person with management or workplace control of the plant.
- Isolators must meet the electrical performance criteria specified in AS/NZS 3000 Wiring Rules and applicable standards referenced therein.
- Every isolator must be identified by an English language label that unambiguously indicates the plant that it isolates.
- The on and off positions of every isolator must be clearly labelled using English language text or internationally accepted symbols.
- Isolators must be designed to be able to be locked into the "off" position by a padlock that has a 6.5 mm diameter shank.
 - **Multiple Sources of Supply**
- Where multiple sources of supply exist for an electrical installation or equipment, each source of supply shall be identified at the electrical installation or equipment and adjacent to any switch that might be considered the main isolator for the installation or equipment.
- Signs warning of multiple sources of supply must be in the 'Danger' format.
 - **Protection Against the Ingress of Solids or Liquids**
- Electrical equipment enclosures must be provided with the following minimum degree of protection ratings from AS 60529 Degrees of protection provided by enclosures (IP Code), to minimise the risks of direct and indirect contact with live parts and to achieve desired plant reliability and life expectancy:
 - Indoor installations, air-conditioned environment: IP44,
 - Indoor installations, uncontrolled environment: IP54,
 - Outdoor installations, not subject to hosing down: IP55, and
 - Outdoor installations, subject to hosing down: IP56.
- Electrical appliances that are approved for use in Australia and that inherently have openings that do not provide the minimum 1st numeral (protection against solid objects) IP rating of 4 specified above (eg, toasters, space heaters, hot air guns) may be installed and used in a suitable indoor environment.
- AS/NZS 3000 Wiring Rules prescribes mandatory minimum degree of protection ratings for electrical equipment in specific types of situations (e.g. bathrooms) which may exceed to minimum ratings listed above.
 - **Legacy Switchboards & Equipment**
- Where legacy switchboards and equipment do not provide and an IP 2X degree of protection in the original design:
 - insulating barriers that are designed to prevent inadvertent direct contact must be installed where ever practicable, and
 - where it is impractical to provide insulating barriers the enclosure must be secured so that access requires a key or tool and the enclosure access points must be labelled 'Danger – Exposed Live Parts Within'

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▪ **Safeguarding & Safety Integrity Requirements**

- Where plant, including industrial robots, that is remotely or automatically electrically energised, could lead to risks to health and safety, access to the area in the immediate vicinity of the plant must be designed to control access at all times:
 - by isolating the area, or
 - by:
 - providing interlocked guards, or
 - if a risk remains, providing presence-sensing devices, or
 - if a risk then remains, providing permit to work systems.
- Where a safeguarding system relies wholly or partly on electrical energy for the provision of the safety function(s) the design of the electrically energised parts of the safeguarding system must be designed, supplied, installed and maintained in a manner such that the safeguarding system provides a probability of failure commensurate to the degree of risk posed by the hazard that it safeguards against.
- The following standards provide methodologies for providing safeguarding systems that provide a probability of failure commensurate to the degree of risk posed by the hazard that they protect against:
 - AS 4024.1 (Series), Safety of machinery,
 - AS 61508 Functional safety of electrical/electronic/programmable electronic safety-related systems,
 - AS IEC 61511 Functional Safety – Safety instrumented systems for the process industry sector,
 - AS 62061 Safety of Machinery – Functional safety of safety related electrical, electronic and programmable electronic control systems, and
 - ISO 13849 Safety of machinery – Safety related parts of control systems.
- The risk assessment executed to derive safeguarding Category/SIL/PL must be submitted to the Senior Electrical Representative for review prior to the completion of the design.
- When selecting safeguards where access to the area of the plant requiring guarding is necessary during operation, maintenance or cleaning of the plant the WHS Regulation requires the following sequence of consideration in respect to the electrical aspects of the safeguard:
 - (1) The guarding is an interlocked physical barrier that allows access to the area being guarded at times when that area does not present a risk and prevents access to that area at any other time, or
 - (2) If it is not reasonably practicable to use guarding referred to in (1) above the guarding used is a physical barrier that can only be altered or removed by the use of tools, or
 - (3) If it is not reasonably practicable to use guarding referred to in (1) or (2) above the design includes a presence-sensing safeguarding system that eliminates any risk arising from the area of the plant requiring guarding while a person or any part of a person is in the area being guarded. Where a presence-sensing safeguarding system is utilised the applicable records specified in Section 0 of this document must be made and maintained.
- So far as is reasonably practicable plant must shut down if guarding is removed and not be able to be re-energised if guarding is not in place.
- Safeguarding must be designed to make bypassing or disabling of the safeguarding, whether deliberately or by accident, as difficult as is reasonably practicable - the safeguarding standards listed above provide guidance in respect to this requirement.

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▪ Hot Surfaces

- Electrical installations or equipment that, during its intended modes of operation, may have surfaces that continuously exceed 50°C but do not reach or exceed 60°C must be provided warning signage to minimise the risk of harm to any person.
- Electrical installations or equipment that, during its intended modes of operation, may have surfaces that continuously exceed 60°C must be provided with fixed guarding and warning signage to prevent harm to any person.

▪ Redundant Electrical Cables and Equipment

- The existence of redundant or unused cabling and wiring presents a potential hazard due to unexpected live conductors. These conductors may be live due to inadequate isolations or induced voltages.
- To minimise the hazard of redundant cables:
 - Where possible and practical, all redundant cabling shall be proven to be completely de-energised and disconnected from all potentially live sources of supply and then removed in total
 - Where it is not possible or practical to remove the redundant cabling, the following will apply:-
 - Cables shall be disconnected at both ends where possible.
 - At each cable end, all conductors shall be joined together and earthed or each cable end shall be sealed via heat shrink or terminated into an insulated junction box.
 - The cable shall be permanently labelled at both ends. The label shall identify the cable as redundant and shall have a unique cable number. All cables shall be recorded in the site redundant cable schedule
- It is recognised that redundant legacy cables may exist on the Company's sites that may not have been identified or recorded; as these cables are identified they shall be recorded on the site redundant cable register.

Electrical Equipment Register

- The Site Electrical Representative must develop and maintain an electrical equipment register for the site.
- The electrical equipment register must:
 - List each item of electrical equipment by name & any applicable identification number
 - Identify ratings and other relevant parameters
 - Include all fixed equipment (process plant, generator, workshop, office / weighbridge building), cabling, overhead lines and their support structures and all portable electrical equipment and appliances and electric welding equipment

Electrical Installation Work

- Electrical Installation work must only be carried out by authorised electrical workers.in accordance with:
 - the Company's risk management requirements,
 - a SWMS or WI for the work, and

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- AS/NZS 4836 Safe working on or near low-voltage electrical installations and equipment
- All installation work that is required to connect to existing electrical installations or equipment must be carried out with the existing electrical installations or equipment isolated.
- Installation work that requires interaction with existing energised cables must be carried out in accordance with Section 0
- Any measurement of energised LV electrical parameters during installation work must be carried out in accordance with Section 0.
- The actual locations of all underground electrical services must be recorded during the installation of these services.

Electrical Commissioning

- Following the completion of the construction and/or installation electrical installations and equipment must be verified as safe for use by the execution of a planned and documented commissioning process.
- Electrical commissioning work must only be carried out by authorised electrical workers.in accordance with:
 - the Company's risk management requirements, and
 - AS/NZS 4836 Safe working on or near low-voltage electrical installations and equipment.
- The worker responsible for the electrical installations and equipment to be commissioned must ensure, prior to commissioning commencing, that:
 - an adequate commissioning plan/process has been developed, documented and reviewed,
 - the commissioning plan has identified the competencies required for each member of the commissioning team,
 - the commission plan/process has considered the information provided by the designer, manufacturer, importer and supplier of the electrical installation and/or equipment ,
 - appropriate documents for recording the commissioning process and its results have been developed and reviewed,
 - the commissioning plan/process has been appropriately risk assessed,
 - the plant is, so far as is reasonably practicable, safe to commission and without risks to the health and safety of any person,
 - all stakeholders are aware of the timing and actions involved in the commissioning process, and
 - the workers commissioning the electrical installation or equipment are provided with the available information for eliminating or minimising risks to health or safety.
- Any corrections or alterations of the electrical installation or equipment made during commissioning must be carried out with electrical installations or equipment isolated.
- Any measurement of energised LV electrical parameters during commissioning work must be carried out in accordance with Section 0.

Certificate of Compliance Electrical Work

- The commissioning of electrical Installations designed and installed to the requirements of AS/NZS 3000, Wiring Rules must be tested and commissioned by an authorised electrical worker to the requirements specified in AS/NZS 3000, Wiring Rules and any additional requirements applicable to the type of electrical installation or equipment.
- The electrical contractor responsible for the commissioning of electrical work of a type requiring the issue of a certificate of compliance electrical work (CCEW) must issue the certificate to the parties required.

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- The Site Electrical Representative must retain all CCEWs issued to the company as described in Section 0.

Electrical Maintenance

Electrical Maintenance Plan

- The Site Electrical Representative must develop and implement an electrical maintenance plan for the site.
- The Electrical Maintenance Plan must:
 - Identify all maintenance actions for all items on the Electrical Equipment Register,
 - Detail each maintenance action,
 - List the frequency of each maintenance action, and
 - Require recording of results of all maintenance actions.
- The Electrical Maintenance Plan must address the scheduled testing and tagging of portable electrical equipment in accordance with the requirements of AS3760 In-service safety inspection and testing of electrical equipment and the associated record keeping

Electrical Safety & Compliance Audits

- As part of its Electrical Maintenance Plan the site must periodically engage a competent person to conduct a Safety and compliance audit of the site's electrical installations and equipment.
- The compliance audit should be executed at least every 3 years.
- The audit must assess compliance to AS/NZS 3000 and AS 3007 and standards referenced therein.
- The Site Electrical Representative must maintain a record of audit results and corrective actions.
- The Site Electrical Representative must develop and implement a program to action and closeout all corrective action resulting from the audits.

Electrical Earthing System Integrity

- As part of its Electrical Maintenance Plan the site must periodically inspect and test integrity of the earthing systems of the site's power supply (electrical supply authority mains supply and/or generator supply).
- The inspection and testing must assess compliance to AS/NZS 3000 and AS 3007 and standards referenced therein. The compliance audit should be executed at least every 3 years and whenever mining operations require a relocation of power supply systems and earthing.
- The inspection and testing must include all earthing electrodes and all main earthing conductors
- The Site Electrical Representative must maintain a record of the inspections and tests results and corrective actions.
- The Site Electrical Representative must develop and implement a program to action and closeout all corrective action resulting from the tests and inspections.
-

Thermographic Inspections

- Thermographic surveys of the site's main electrical distribution systems (including transformers, main switchboards, generators, motor control centres) must be carried out annually.
- Thermographic surveys will be triggered by the maintenance plan.
- The survey should take place when equipment is operating at normal or higher capacity.
- Thermographic survey workers must be accompanied at all times by the Site Electrical Representative or their delegate.

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- Results of thermographic surveys must be recorded in the maintenance plan as for other maintenance activities.

Electrical Maintenance Work

- All electrical maintenance work must be carried out in response to a work order.
- Electrical Maintenance work must only be carried out in accordance with the Company's risk management requirements by authorised electrical workers.
- Electrical maintenance work must be carried out in accordance with a task specific WMS or WI.
- Where any uncontrolled hazard/risk related the operation of the electrical installation or equipment being maintained or any other operative plant may impact on the health and safety of the maintenance worker(s) the maintenance work must be carried out with the electrical installation and/or equipment and/or other plant isolated.
- Any measurement of energised LV electrical parameters during maintenance work must be carried out in accordance with Section 0.

Fault-finding & Repair Work

- Electrical fault-finding and repair work is often reactive (i.e. unscheduled, non-routine) and as such is electrical work that lies at the upper end of the electrical work risk spectrum. Although electrical fault-finding and repair work can be unscheduled it can, and must be, planned and risk managed.
- Electrical fault-finding and repair work must only be carried out in accordance with the Company's risk management requirements by authorised electrical workers.
- Unscheduled electrical fault-finding and repair work must be carried out in accordance with:
 - Fault-finding by Direct Measurement of Electrical Parameters WMS
 - The OEM Fault-finding and Repair instructions.
- Where any uncontrolled hazard/risk related the operation of the electrical installation or equipment being worked on during electrical fault-finding and repair work, or any other operative plant, may impact on the health and safety of the electrical worker(s) the work must be carried out with the electrical installation and/or equipment and/or other plant Isolated.
- Any electrical fault-finding and repair work that requires access to the enclosure(s) of energised LV electrical equipment that is not provided with insulation or barriers that provide a degree of protection of IP2X or better must be considered as working on or near exposed energised LV conductors and must be carried out in accordance with Section 0.
- Any measurement of energised LV electrical parameters during fault-finding and repair work must be carried out in accordance with Section 0.

Work On or Near Energised LV Installations

- In respect to Section 0 of this document and its subsections, 'on or near' in respect to energised parts of an LV electrical installation or equipment means:
- Proximity to energised, uninsulated conductors where there is a possibility of either of the following coming within 500 mm of the energised, uninsulated conductors:
 - a person's body, or
 - any object which a person may be carrying or touching during the course of the work, that is not designed for use on energized conductors operating at that voltage.

Note: Conductors having a degree of protection of IP2X or better are not considered uninsulated.

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- LV electrical work on or near energised conductors of an LV electrical installation or equipment must only be considered when:
 - it is necessary in the interests of health and safety that the electrical work is carried out on the electrical installation and/or equipment while it is energised, e.g. it may be necessary that life-saving equipment remain energised and operating while electrical work is carried out on the equipment, or
 - it is necessary that the electrical installation or equipment to be worked on is energised in order for the work to be carried out properly, or
 - it is necessary for the purposes of testing to verify that a circuit is not energised, i.e. verification of isolation, or
 - there is no reasonable alternative means of carrying out the work.
- If work on or near energised LV electrical installations or equipment is to be considered the process detailed under headings 0 and 0 below must be implemented prior to the work commencing and the records specified in Section 0 must be kept. (For further detail of the process required refer to Commonwealth Work Health and Safety Regulation 2011, clauses 158 to 162 inclusive.) Alternatively authorised energised LV electrical work may be carried out in accordance with Section 5.

Note that ‘Test Before You Touch’, as required by Section 0, that is carried out after an electrical isolation has been verified and locked out is not considered to be LV electrical work on or near energised conductors of an LV electrical installation or equipment.

Preliminary Steps

- Before electrical work on or near energised conductors of an electrical installation and/or equipment commences, the following must be implemented:
 1. A documented risk assessment must be conducted by a competent worker in relation to the proposed electrical work, Note: Work Health and Safety Regulation 2011, clause 12 permits risk assessments to be conducted, in certain circumstances, to a class of hazards, tasks, things or circumstances.
 2. The area where the electrical work is to be carried must be cleared of obstructions so as to allow for easy access and exit,
 3. The point at which the electrical installation or equipment can be disconnected or Isolated from its electricity supply must be:
 - a. clearly marked or labelled, and
 - b. clear of obstructions so as to allow for easy access and exit by the worker who is to carry out the electrical work or any other competent worker, and
 - c. capable of being operated quickly.

Note: Point 3 above does not apply to electrical work on an electrical installation or equipment if:

- the work is to be carried out on the supply side of the main switch on the main switchboard for the electrical installation or equipment , and
 - the point at which the electrical installation or equipment can be disconnected from its electricity supply is not reasonably accessible from the work location.
4. Contractors to the Company must, prior to authorising the electrical work, consult with the person with management or control of the workplace where the energised electrical work is being carried out.

Execution of Energised LV Electrical Work

1. The Company must ensure that electrical work on or near energised conductors of an LV electrical installation or equipment (including live line work) is carried out:

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- a. by a competent worker who has tools, testing equipment and personal protective equipment (arc fault protection PPE may be required) that:
 - i. are suitable for the work, and
 - ii. have been properly tested, and
 - i. are maintained in good working order, and
- b. in accordance with a procedure that:
 - iii. identifies the electrical work, and
 - iv. specifies the hazards associated with that electrical work and the risks associated with those hazards, and
 - v. describes the measures to be implemented to control the risks, and
 - vi. describes how the risk control measures are to be implemented, monitored and reviewed,
 - vii. is prepared for the work, and
- c. with a safety observer (as defined in Section 1)

Note: A safety observer is not required if:

- the work consists only of testing, and
 - the person conducting the business or undertaking has conducted a risk assessment under Commonwealth Work Health and Safety Regulation 2011 clause 158 (1) (a) that shows that there is no serious risk associated with the proposed work.
2. The Company must ensure, so far as is reasonably practicable, that the worker who carries out the electrical work uses the tools, testing equipment and personal protective equipment properly, and
 3. The Company must ensure, so far as is reasonably practicable, that only persons authorised by the Company enter the immediate area in which electrical work on or near energised conductors of an electrical installation or equipment is being carried out, and
 4. The Company must ensure that, while electrical work is being carried out on or near energised conductors of an electrical installation or equipment, all persons are prevented from creating an electrical risk by inadvertently making contact with an energised conductor of the electrical installation or equipment. Note: Insulating mats complying with AS/NZS 2978 Insulating mats for electrical purposes, may be utilised to prevent inadvertent contact with proximate, exposed energised parts – insulating mats must be inspected for damage prior to use. AS/NZS 4836, Safe working on or near low-voltage electrical installations and equipment also gives guidance on risk controls for working on or near energised conductors of an electrical installation or equipment.
 5. The Site Electrical Representative or his/her delegate must ensure that records relating to energised LV electrical work are kept in accordance with Section 0.

Authorised Energised LV Electrical Work the Company's Workplaces

- At the Company's workplaces electrical work on or near energised LV electrical installations &/or equipment must be carried out in accordance with the associated safe work method statement and is only authorised for:
 - verifying an electrical isolation by direct voltage measurement in accordance with the site's Verifying Isolation by Voltage Measurement WMS or
 - fault-finding, where isolated fault-finding methods have been unsuccessful or are not a reasonable alternative, in accordance with Fault-finding by Direct Measurement of Electrical Parameters WMS.

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- The above listed SWMSs for energised LV electrical work have been developed to meet the requirements of Sections 0 and 0 for the specific tasks listed in each SWMS. The records specified in Section 0 must be kept.
- **No other form of energised electrical work is authorised at the Company's workplaces.**
- All measurement of LV electrical installation or equipment electrical parameters must use equipment complying with the Design, Supply & Installation Requirements for Electrical Installations & Equipment Instruction used in accordance with the applicable SWMS (see above) and the requirements of:
 - Safe Work Australia, Managing Electrical Risks in the Workplace, Code of Practice, July 2012
 - the safe use instructions of the equipment OEM.
 - Safe Use of LV Multimeters and Test Equipment
 - AS 4836 Safe working on or near low-voltage electrical installations and equipment
 - HB 187 Guide to selecting a safe multimeter
- It is preferred that non-contact test devices be used as a preliminary test for absence of voltages (remember only effective on AC sources) prior to the use of direct measuring devices.
- Test lamps or test pens (test screw driver) are prohibited from being used for test before you touch or for verification of isolation.
- Where measuring devices are used for safety and/or electrical protection related tasks e.g. proving isolations, confirming earth continuity, the measuring devices must be positively confirmed as operative immediately prior to and immediately after carrying out the task.

Handling Fixed Energised LV Cables or Wiring

- Handling of energised, insulated fixed LV cables or wiring is considered to be working on or near energised conductors of an electrical installation or equipment and, if this work cannot be carried out with all cables de-energised and isolated, the requirements of Section Sections 0 and 0 must be applied.
- 'Handling of fixed Insulated LV cables or wiring' includes, but is not limited to:
 - installing cables into or removing cables from cable support systems carrying existing, energised cables,
 - tracing wiring in wiring ducts by hand,
 - cutting the securing straps or ties of energised cables or flexible cords.

Note: Flexible cords (e.g., Appliance connection leads or extension leads) are not considered 'energised, Insulated LV cables or wiring' in the respect of this section except in respect to the 3rd dot point above.

ELV Electrical Work

- While extra low voltage (ELV) levels should not be a source of a harmful electric shock they are often associated with stored energy systems with a high fault current capacity (e.g. batteries, capacitors).
- Work on ELV systems containing batteries or capacitors with exposed terminals must always be carried out using insulated tools and where required insulating mats.

Fixed ELV Electrical Installations

- Work on fixed ELV electrical installations and equipment must only be carried out by authorised electrical workers. Whenever practicable electrical work on fixed ELV electrical installations and equipment must be carried out with the system Isolated.

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- Energised electrical work on fixed ELV electrical installations and equipment must only be carried out if the electrical installation and/or equipment is fully compliant with the requirements of AS/NZS 3000, Wiring Rules, as either a separated extra low voltage system (SELV) or a protected extra low voltage system (PELV).
- If the ELV electrical installation and/or equipment is not a compliant SELV or PELV system, the it must be considered an LV system (as required by AS/NZS 3000, Wiring Rules) and it must be worked on in a de-energised state or, if worked on in an energised state, the requirements of Section 0 must apply.
- Refer also to the Electrical Safety Instruction for the ELV electrical safety requirements relating to impressed current cathodic protection systems.

Mobile Plant ELV Installations

- Work on mobile plant ELV electrical installations and equipment must be carried out by authorised workers.
- Whenever practicable electrical work on ELV electrical installations and equipment must be carried out with the system isolated.

Training & Awareness of this Plan

- The Site Electrical Representative or their delegate must issue this plan to all of the Company's electrical workers (employee and contractor) and instruct that workers to whom it is issued make themselves familiar with its requirements and apply it to their work
- The key points of this plan must be incorporated in the Company's site induction process by the Site Electrical Representative or their delegate.
- The Compliance Manager has the overall responsibility for the implementation of this plan (this person may not be electrically qualified) must have a basic understanding of electrical safety and understand the requirements of this plan. Basic electrical competencies training may be required for this officer.

Records

In relation to the implementation of the requirements of this instruction the following records listed below must be created and maintained by the persons nominated.

- Section 0, Workers Authorised to Restore or Remove Electrical Power. The record, maintained by the Site Electrical Representative or their delegate, must contain: the authorised workers full name; employer, position description; work location; electrical power restoration and removal actions authorised for the worker; protective devices the worker is authorised to reset; date authorised; and expiry date of authorisation. The Site Electrical Representative or their delegate must be responsible for these records.
- Section 0, Register of electrical room/enclosure access keys issued. The record, maintained by the Site Electrical Representative or their delegate, must contain: the full name, employer and position description of key holder; the types of keys issued; the serial numbers of the issued keys; the work allowed in the accessed enclosures; date key issued; and date key returned. The Site Electrical Representative or their delegate must be responsible for these records.
- Section, □□□ Accredited Persons. The record must contain: the Accredited Person's full name; employer, position description; date accredited; and expiry date of accreditation. The Site Electrical Representative or their delegate must be responsible for these records.

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- Section 0, Persons authorised to carry out vegetation control near overhead electric lines. The record must contain: the authorised person's full name; employer, position description and competencies; date authorised; any work area restrictions and expiry date of authorisation. The contents of this record must be re-validated at each annual re-induction. The Site Electrical Representative or their delegate must be responsible for these records.
- Section 0, Authorised electrical workers. The record must contain: the authorised electrical worker's full name; employer, position description; work location; licence number (or equivalent); evidence of skills & experience (resume); electrical work types authorised; date authorised; and expiry date of authorisation. The Site Electrical Representative or their delegate must be responsible for these records.
- Section 0, Commissioning Records and Certificates of Compliance Electrical Work issued to the Company must be kept for the life of the electrical installation or equipment or until alteration or replacement makes them redundant. The Site Electrical Representative or their delegate must be responsible for these records.
- Section 0, Energised LV Electrical Work. A copy of the procedure must be kept until the work to which it relates is completed and a copy of the risk assessment must be kept until at least 28 days after the work to which it relates is completed except in the case of a notifiable incident occurring in connection with the work to which the risk assessment or procedure relates, in which case the risk assessment and the procedure must be kept for at least 2 years after the incident occurred. The Site Electrical Representative or their delegate must be responsible for these records.
- Section 0, Records of Presence Sensing Safeguarding. Where presence sensing safeguards are installed a record of safety integrity tests, inspections, maintenance, commissioning, decommissioning, dismantling and alterations of the safeguarding must be kept for the life of the plant. The Site Electrical Representative or their delegate must be responsible for these records.

Responsibilities

ROLE	Responsibilities
Electrician	Identify hazards in the workplace and assess their risk. Ensure that: the appropriate risk assessment has been completed details as set out in the relevant SWMS are correct and complete for the work to be undertaken the control measures comply with this SOP and regulated requirements, as applicable. Work in accordance with this SOP and other workplace instructions. Have the qualifications to work unsupervised, unless another Electrician with that qualification is able to provide supervision. Provide adequate supervision for assigned electrical apprentices, commensurate with the activity being undertaken
Competent Assistant/ Observer	Do not perform any other duty concurrently. Be familiar with the site's access, egress and facilities. Be able to isolate all the supplies to the work location in case of an emergency. Have a rescue kit readily available.

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	Have a proven, tested means of contacting any emergency body or other emergency contact. Be present at all times during any testing, fault-finding or other work, when identified as necessary by a risk assessment. Provide assistance to Electricians in an emergency situation. Hold current certifications in low-voltage rescue and CPR.
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Definitions

Appliance, fixed	An appliance that is fastened to a support or otherwise secured in a specific location (AS/NZS 3000 Wiring Rules).
Appliance, hand-held	A portable appliance intended to be held in the hand during normal use, the motor, if any, forming an integral part of the appliance (AS/NZS 3000 Wiring Rules).
Appliance, portable	Either an appliance that is moved while in operation or an appliance that can easily be moved from one place to another while connected to the supply (AS/NZS 3000 Wiring Rules).
Competent, competent worker	Means: - For electrical work on energised electrical Installations and/or equipment (other than testing of portable appliances or residual current devices) - a worker who is authorised under the Home Building Act 1989 to do electrical wiring work. - For any other case - a worker who has acquired through training, qualification or experience the knowledge and skills to carry out the task. (Work Health and Safety Regulation 2011).
Construction work	Refer to definition in Section Error! Reference source not found.
Construction workplace	A workplace where construction work as defined by Work Health and Safety Regulation 2011 is carried out.

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Electrical disconnection and reconnection work	Means electrical work that is limited to: ▪ disconnection and reconnection of electrical wiring at the electrical equipment itself and only to the extent necessary to permit the non-electrical work to be performed, ▪ replacement of electrical equipment on a “like for like” basis, ▪ testing necessary for the safe isolation of the electrical equipment to be disconnected and reconnected, ▪ testing necessary for the safe operation of the electrical equipment, ▪ replacement of 'blown' fuses and resetting of “tripped” circuit breakers, ▪ electrical equipment operation at voltages up to 1000 Vac three phase and 1500 Vdc. (Home Building Regulation 2004)
Electrical equipment	Wiring systems, switchgear, control gear, accessories, appliances, luminaires and fittings used for such purposes as generation, conversion, storage, transmission, distribution or utilization of, electrical energy (AS/NZS 3000 Wiring Rules).
Electrical installation	Electrical equipment installed for the purposes of conveyance, control, measurement or use of electricity, where electricity is or is to be supplied for consumption. It includes electrical equipment supplied from a distributor’s system or a private generating system (AS/NZS 3000 Wiring Rules). In this document it does not include any electrical article connected to, and extending or situated beyond, any electrical outlet socket.
Electrical wiring work	Means the actual physical work of installing, repairing, altering, removing or adding to an electrical installation or the supervising of that work (from Electricity (Consumer Safety) Act 2004 and referenced in Home Building Act 1989 and Home Building Regulation 2004).

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Electrical work	Means: ▪ connecting electricity supply wiring to electrical equipment or disconnecting electricity supply wiring from electrical equipment, or ▪ installing, removing, adding, testing, replacing, repairing, altering or maintaining electrical equipment or an electrical installation. Electrical work does not include the following: ▪ work that involves connecting electrical equipment to an electricity supply by means of a flexible cord plug and socket outlet, ▪ work on a non-electrical component of electrical equipment, if the worker carrying out the work is not exposed to an electrical risk, e.g., painting electrical equipment, ▪ replacing electrical equipment or a component of electrical equipment if that task can be safely performed by a worker who does not have expertise in carrying out electrical work, e.g., replacing a light bulb, ▪ assembling, making, modifying or repairing electrical equipment as part of a manufacturing process, ▪ building or repairing ducts, conduits or troughs, where electrical wiring is or will be installed if: ○ the ducts, conduits or troughs are not intended to be earthed, and ○ the wiring is not energised, and ○ the work is supervised by an authorised electrician, ▪ locating or mounting electrical equipment, or fixing electrical equipment in place, if this task is not performed in relation to the connection of electrical equipment to an electricity supply, ▪ assisting an authorised electrician to carry out electrical work if ○ the assistant is directly supervised by the authorised electrician, and ○ the assistance does not involve physical contact with any energised electrical equipment. ▪ carrying out electrical work, other than work on energised electrical equipment, in order to meet eligibility requirements in relation to becoming an authorised electrician (Work Health and Safety Regulation 2011).
Electrical worker	A worker who carries out electrical work

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Exposed conductive part	A exposed conductive part of electrical equipment that: - can be touched with the standard test finger as specified in AS/NZS 3100 Approval and test specification - General requirements for electrical equipment; and - is not a live part but can become live if basic insulation fails (AS/NZS 3000 Wiring Rules).
Extra low voltage (ELV)	A voltage not exceeding 50 Vac or 120 Vdc ripple-free (AS/NZS 3000 Wiring Rules).
Fault-finding	The action of analysing an electrical installation and/or equipment not functioning as intended. Fault finding may be carried out before Repair work and can include inspection, measurement and/or testing.
Hazardous area	An area at risk of a fire or explosion due to the presence of flammable gas/vapour or combustible dust as defined by: - AS/NZS 60079.10.1 Explosive atmospheres—Classification of areas – Explosive gas atmospheres, or - AS/NZS 60079.10.2 Explosive atmospheres – Classification of areas – Combustible dust atmospheres
High voltage (HV)	A voltage exceeding low voltage (i.e. > 1,000 Vac or 1,500 Vdc) (AS/NZS 3000 Wiring Rules).
Authorised electrical worker	An electrical worker with the competency listed in Section Error! Reference source not found. who has been authorised by the Company to carry out a specified type of electrical work
Electrical worker	An electrical worker working at a workplace owned, controlled or managed by the Company
Insulated	Separated from adjacent conducting material by a non-conducting substance or airspace permanently providing resistance to the passage of current, or to disruptive discharges through or over the surface of the substance or space, to obviate danger of shock or injurious leakage of current (AS/NZS 3000 Wiring Rules).
Isolated	The definition of the Company's Isolation, Lockout and Tagging Instruction applies
Low voltage (LV)	A voltage exceeding extra low voltage (i.e.> 50 Vac or 120 Vdc ripple-free), but not exceeding 1,000 Vac or 1,500 Vdc (AS/NZS 3000 Wiring Rules).

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Maintenance	The routine actions required to keep the electrical installation and/or equipment in a condition where it reliably functions as intended e.g. inspection, adjustment, cleaning, lubrication, and scheduled replacement of consumable parts.
OEM	Original equipment manufacturer
PPE	Personal protective equipment
Plant	Includes: any machinery, equipment, appliance, container, implement and tool, and any component of any of those things, and anything fitted or connected to any of those things. (Work Health and Safety Act 2011)
Protected extra low voltage (PELV)	An extra low voltage installation compliant with the power supply, segregation and installation requirements of Clause 7.5 of AS/NZS 3000 Wiring Rules
Qualified electrical supervisor	The holder of an endorsed contractor licence, or a supervisor certificate, authorising its holder to do electrical wiring work)
Repair	The actions required to return an electrical installation and/or equipment to a condition where it reliably functions as intended following an unexpected failure, damage, misuse or inadequate maintenance. Fault-finding may be required prior to repair.
Safety observer	Means, in respect to electrical work, a person who must: ▪ understand all safety aspects of the work being observed, and ▪ be competent to implement control measures in an emergency, and ▪ be able to rescue the worker who is carrying out the work, if it is necessary and safe to do so, and ▪ have been assessed in the previous 12 months as competent to rescue and resuscitate a person.
SOP	Safe operating procedure
SWMS	Safe work method statement
WI	Work instruction

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Worker	Worker includes all of the following: ▪ an employee of the Company, ▪ a contractor or subcontractor to the Company, ▪ an employee of a contractor or subcontractor to the Company, ▪ an employee of a labour hire company who has been assigned to work at a Company workplace, ▪ an outworker, or an apprentice of the Company, ▪ trainee of the Company, ▪ a student gaining work experience at the Company, or ▪ a volunteer at the Company.
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References

Standards	Title
AS/NZS 1158:2005	Lighting for roads and public spaces
AS/NZS 1680 (series)	Interior lighting
AS 1755:2000	Conveyors – Safety requirements
AS/NZS 1768:2007	Lightning protection
AS 2067-2008	Substation and high voltage installation exceeding 1 KV ac.
AS/NZS 2293 (series)	Emergency escape lighting and exit signs
AS 2467-2008	Maintenance of electrical switchgear
AS/NZS 3000:2007	Wiring Rules
AS 3007-2004 (series)	Electrical installations – surface mines and associated processing plant
AS/NZS 3008.1.1:2009	Selection of cables – Cables for alternating voltages up to and including 0.6/1 KV
AS/NZS 3012:2010	Electrical installations - Construction and demolition sites
AS/NZS 3017:2007	Electrical installations – Verification guidelines
AS/NZS 3019:2007	Electrical installations – Periodic verification
AS/NZS 3100:2009	Approval and test specification - General requirements for electrical equipment
AS/NZS 3439.1:2002	Low-voltage switchgear and control gear assemblies – Type-tested and partially type-tested assemblies
AS/NZS 3439.3:2002	Low-voltage switchgear and control gear assemblies - Particular requirements for low-voltage switchgear and control gear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards
AS/NZS 3760:2010	In-service safety inspection and testing of electrical equipment
AS/NZS 3820:2009	Essential safety requirements for low-voltage equipment
AS/NZS 4024 (series)	Safety of machinery
AS/NZS 4836:2001	Safe Working on or near low voltage electrical installations

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AS 60204.1-2005	Safety of machinery – Electrical equipment of machines – General requirements
AS 60204.11-2006	Safety of machinery – Electrical equipment of machines – Requirements for HV equipment for voltages above 1000 V ac or 1500 V dc and not exceeding 36 kV
AS 60529-2004	Degrees of protection provided by enclosures (IP Codes)

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APPENDIX 2: Emergency Management PCP

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PRINCIPAL CONTROL PLAN



EMERGENCY MANAGEMENT BADGERYS CREEK QUARRY

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1. TRIGGER ACTION RESPONSE PLAN (TARP)

Trigger Level	Trigger Description / Example	Immediate Actions	Responsible Role(s)
Level 1 – Alert (Minor)	Small, contained incident (minor fire, spill < 20 L, first aid injury).	Control at source, notify Supervisor, record in log.	Supervisor
Level 2 – Site Emergency (Moderate)	Incident affecting one work area or potential to escalate (injury requiring ambulance, fire requiring extinguisher, machinery rollover).	Activate site alarm, notify Chief Warden, evacuate affected area, contact external services if required	Chief Warden / Mine Manager
Level 3 – Full Site Emergency (Major)	Incident impacting multiple areas or requiring external response (fatality, bushfire, explosion, inundation).	Full site evacuation, external emergency services response, ERP fully enacted, regulator notification.	Chief Warden / Mine Manager / WHS Manager
Level 4 – Recovery / Post-Incident	Emergency under control – transition to recovery and investigation phase.	Account for personnel, secure area, initiate post-incident review, notify stakeholders.	Mine Manager / WHS Manager

2. DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	12/08/2025	Review and Updates following Risk assessment reviews	BN

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12.	EMERGENCY RESPONSE	Error! Bookmark not defined.
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3. PURPOSE

This Principal Control Plan (PCP) establishes the control framework for managing emergencies at **Badgerys Creek Quarry (BCQ)**.

It supports the **Safety Management System (SMS)** by identifying principal hazards that could result in emergencies and detailing the preventive and mitigative control measures in place to manage them.

This PCP satisfies **Clause 26(2)(b)** of the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2022*, which requires mine operators to prepare and implement an **Emergency Control Plan**.

The PCP works in conjunction with the **Emergency Response Plan (ERP – Rev.03, 11/09/2025)**, which provides the operational response procedures.

4. SCOPE

This plan applies to all MQ personnel, contractors, and visitors at Badgerys Creek Quarry. It covers all operational and administrative areas including:

- Extraction and quarrying operations
- Rehabilitation and filling areas
- Crushing and screening plants
- Workshops, fuel storage and maintenance areas
- Haul roads and vehicle operating zones
- Offices and amenities

5. REFERENCES

Legislation

- Work Health and Safety Act 2011
- Work Health and Safety Regulation 2017
- Work Health and Safety (Mines and Petroleum Sites) Regulation 2022

Codes of Practice & Standards

- Safe Work Australia – Managing the Work Environment and Facilities
- SafeWork NSW – Managing the Risk of Fire and Explosion at Mines
- AS 3745:2010 – Planning for Emergencies in Facilities
- AS 1851:2012 – Routine Service of Fire Protection Systems and Equipment

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Related MQ Documents

- ERP – Badgerys Creek Quarry (Rev.03, 11/09/2025)
- Fire & Explosion PHMP (IMS-PHMP-02.008)
- Roads & Vehicle Operating Areas PCP (IMS-PCP-02.007)
- Inundation & Inrush PHMP (IMS-PHMP-02.004)
- Health Control Plan – Badgerys Creek Quarry (IMS-HCP-02.008)

6. PRINCIPAL EMERGENCY HAZARDS

Emergency Type	Description / Example Scenarios	Potential Consequences
Fire / Explosion	Workshop, refuelling, or plant fires	Injury, fatality, asset loss, environmental damage
Medical Emergencies	Injury, illness, cardiac event	Fatality, trauma, work stoppage
Hazardous Material Spill	Fuel, oil, hydraulic fluid, chemical spill	Environmental contamination, health exposure
Vehicle Collisions	Vehicle–vehicle, vehicle–pedestrian	Injury, fatality, property damage
Electrical Incident	Electric shock, arc flash	Fatality, burns, fire
Flood / Inundation	Heavy rainfall, bund failure, sump overflow	Property damage, operational shutdown
Ground Failure / Slippage	Excavation collapse or batter failure	Injury, entrapment, environmental risk
Severe Weather	Lightning, high winds, storm events	Injury, equipment damage
Bushfire / Grassfire	External fire approaching site	Evacuation, equipment damage
Hostile Intruder / Robbery	External security threat	Worker harm, business disruption

7. CONTROL FRAMEWORK

Hierarchy of Control Applied:

1. **Elimination / Substitution:** Cease work in high-risk conditions (e.g., lightning, flood).
2. **Engineering Controls:** Fire detection systems, bunding, spill containment, emergency lighting, alarms.
3. **Administrative Controls:** Emergency procedures, ERP, signage, muster points, drills, and communication systems.
4. **PPE:** Fire-retardant clothing, gloves, helmets, respiratory and eye protection as required.

Preventive Controls Include:

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- Fire systems inspection per AS 1851
- Bunding and containment for fuels and chemicals
- Separation distances between flammable storage and structures
- Preventive maintenance and inspection of electrical installations
- Regular training, drills, and communication checks

8. ROLES & RESPONSIBILITIES

Role	Key Responsibilities
Chief Warden (Damon Sydir)	Overall site emergency coordination, activation of ERP, liaison with external agencies, communication with Mine Manager.
Deputy Warden (Darrel Burwick)	Support Chief Warden, coordinate evacuations, ensure headcounts, assume control if Chief Warden unavailable.
First Aid Officers (A. Carpenter / A. Kosicki / L. Willis)	Provide medical treatment, maintain first aid supplies, record incidents.
Fire Wardens (M. Ford / A. Mitchel / J. Bartlow)	Respond to fire alarms, operate fire systems, assist in evacuation.
Mine Manager (Blake Newell)	Ensure ERP and PCP implementation, resource allocation, and post-incident review.
WHS Manager (Shane Wilson)	Ensure compliance with WHS legislation, conduct audits, lead post-incident reviews.
Operators/ Visitors	Follow emergency procedures, report incidents, assist with evacuation and drills.

9. EMERGENCY READINESS & RESOURCES

Resource Type	Description / Control	Inspection Frequency
Fire Extinguishers / Hoses	Provided in all work areas per AS 1851	Monthly
Spill Kits	Located near fuel and oil storage	Monthly
First Aid Kits	Maintained in site offices, vehicles, and work areas	Monthly
Muster Points	Marked and mapped in ERP	Reviewed annually
Communications	UHF and mobile networks maintained	Monthly

10. TRAINING & DRILLS PROGRAM

Objectives:

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- Ensure personnel understand emergency roles and evacuation procedures.
- Validate the effectiveness of the ERP and response systems.

Training & Drill Schedule:

Activity	Frequency	Responsible Person
Induction – Emergency Awareness	At commencement	HSE Coordinator
Fire / Evacuation Drills	Quarterly	Chief Warden
Medical / First Aid Scenario	Biannually	First Aid Officer
Hostile Intruder or Security Drill	Annually	Mine Manager
Spill Response Exercise	Biannually	WHS Coordinator
Tabletop Exercise (Management)	Annually	Mine Manager

Records of all training and drills are maintained in the **ERP Training Log** and reviewed annually.

11. EMERGENCY MONITORING & TESTING

Control	Testing Method	Frequency	Record Form
Communication Systems	Radio and contact tests	Monthly	ERP Communication Log
Fire Systems	Inspection and certification per AS 1851	Annual	Fire Safety Register
Spill Kits / PPE	Visual inspection	Monthly	HSE Monthly Audit
ERP Effectiveness	Annual drill and management review	Annually	ERP Audit Report

12. POST-INCIDENT REVIEW & CONTINUOUS IMPROVEMENT

Following every emergency, drill, or incident, a **Post-Incident Review** will be conducted to assess:

- Response effectiveness

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- Communication efficiency
- Equipment performance
- Personnel roles and decision-making

Key Actions:

1. Conduct After-Action Review (AAR) within 7 days.
2. Document findings and improvement opportunities.
3. Implement corrective actions and track through the **Incident Corrective Action Register**.
4. Update ERP and PCP as required.

Annual Review:

This PCP and the ERP will be reviewed at least annually or following any major incident, regulatory change, or operational modification.

13. 11. CROSS-REFERENCE TO ASSOCIATED DOCUMENTS

- ERP – Badgerys Creek Quarry (Rev.03, 11/09/2025)
- Fire & Explosion PHMP
- Inundation & Inrush PHMP
- Roads & Vehicle Operating Areas PCP
- Health Control Plan – Badgerys Creek Quarry
- Fit-for-Work Procedure (IMS-07.050)
- Contractor Management Procedure (IMS-07.052)
- Emergency Response TARP

APPENDIX 3: Emergency Response Plan

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EMERGENCY RESPONSE PLAN



BADGERYS CREEK QUARRY

DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	20/08/2024	Review and Updates following Risk assessment reviews	SW
2.	13/08/2025	Review and Updates following Risk assessment reviews	BN
3.	11/09/2025	Review and Updates following Risk assessment reviews	BN

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EMERGENCY RESPONSE CONTACT DETAILS

EMERGENCY RESPONSE CONTACT DETAILS

Emergency Response Team Contacts:			
Chief Warden	Damon Sydir	Contact No.:	0428 791 977
Deputy Warden	Darrel Burwick	Contact No.:	0414 942 434
First Aid Officer:	Andrew Carpenter	Contact No.:	0422 097 940
First Aid Officer:	Anthony Kosicki	Contact No.:	0450 500 670
First Aid Officer:	Lachlan Willis	Contact No.:	0476 178 469
Fire Warden:	Mick Ford	Contact No.:	0401 192 621
Fire Warden:	Anthony Mitchel	Contact No.:	0403 290 075
Fire Warden:	Joe Bartlow	Contact No.:	0407 100 733
Quarry Manager	Blake Newell	Contact No.:	0407 794 068
WHS Manager	Shane Wilson	Contact No.:	0418 445 043
WHS Coordinator	Talia Miler	Contact No.:	0448 837 189
Monier Contact	Phil Tutton	Contact No.:	0433 249 340
Operations Manager:	Chris Miler	Contact No.:	0407 457 698
Transport Manager	Jason Yates	Contact No.:	0448 491 546
Workshop Manager	Warren Leahy	Contact No.:	0408 363 833
Emergency Contacts:			
Emergency Services	000 or 112		
MINE SAFETY DEPARTMENT	1300 814 609		
EPA	SYDNEY OFFICE: (02) 9995 5000		

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1 INTRODUCTION

1.1 PURPOSE OF THE EMERGENCY RESPONSE PLAN (ERP)

The purpose of this Emergency Response Plan (ERP) is to outline the procedures and responsibilities for effectively responding to potential emergency situations. This plan is designed to ensure the safety and well-being of all employees, contractors, and visitors within the mine site by providing a clear and systematic approach to managing emergencies, minimizing risks, and protecting the environment. The ERP is an integral component of our commitment to maintaining a safe and compliant workplace in accordance with the relevant legislative requirements.

This plan will provide guidelines for responding to a wide range of emergencies, including but not limited to:

- Fires and explosions
- Medical emergencies
- Hazardous material spills
- Natural disasters (e.g., floods, storms, earthquakes)
- Mine-specific accidents (e.g., Ground Strata incidents, machinery failures)

By having a well-structured ERP in place, Mulgoa Quarries seeks to ensure that all personnel are adequately prepared and trained to respond to emergencies, minimizing the impact of such events on both human health and the environment.

1.2 SCOPE OF THE PLAN

This ERP applies to all emergency situations that may arise on the mine site, whether related to operational activities, environmental factors, or external events. The plan encompasses the following:

- Procedures for identifying, assessing, and responding to emergencies
- Roles and responsibilities of emergency response team members and other key personnel
- Protocols for communication, evacuation, and first aid
- Emergency equipment and resources
- Training and drills for all personnel
- Post-incident reviews and continuous improvement mechanisms

The plan is applicable to all individuals on the site, including employees, contractors, subcontractors, visitors, and emergency responders. It covers both routine and exceptional

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situations that may result in emergencies and sets the foundation for an effective, coordinated response.

2 ROLES & RESPONSIBILITIES

The following outlines the roles and responsibilities of key personnel involved in the emergency response process at Badgerys Creek Quarry.

2.1 EMERGENCY RESPONSE TEAM (ERT)

The Emergency Response Team (ERT) is responsible for coordinating and executing all emergency response actions at the mine. This team is trained to handle various types of emergencies and operates under the direction of the Emergency Coordinator.

The ERT members may include the following roles:

Chief Warden Responsibilities:

- Oversee and coordinate the overall response to any emergency.
- Make critical decisions during emergencies to protect life, property, and the environment.
- Communicate with external agencies such as emergency services (police, fire, ambulance) and regulatory bodies.
- Ensure that the emergency response procedures are followed and that all personnel are accounted for.
- Ensure adequate training and drills are conducted for all personnel.
- Coordinate resource allocation during an emergency.
- Maintain an emergency response log documenting all actions taken during an emergency.
- Act as the central point of communication during an emergency.
- Ensure all personnel are informed of the emergency and that proper evacuation and safety protocols are followed.
- Coordinate with external stakeholders (including Monier Pavers), emergency services, local authorities, and families of personnel, as necessary.
- Document all communications and updates during an emergency.

Deputy Warden Responsibilities:

- Assist the Chief Warden in all aspects of emergency response.
- Assume the role of the Chief Warden in their absence or if they are incapacitated.
- Coordinate resource allocation during an emergency.
- Maintain an emergency response log documenting all actions taken during an emergency.
- Ensure that all personnel are evacuated or relocated to safe areas as quickly as possible during an emergency.

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- Monitor the situation and provide updates to the Chief Warden.
- Ensure that emergency exits and evacuation routes are clear and accessible.

First Aid Officer(s)
Responsibilities:

- Provide immediate medical treatment to injured or ill workers.
- Assess the severity of injuries and arrange for transportation to medical facilities if needed.
- Keep records of all medical treatment provided and report any incidents of injury or illness.

Fire Warden(s)
Responsibilities:

- Respond immediately to fires and smoke detection alarms.
- Ensure fire extinguishers and other firefighting equipment are functional and accessible.
- Evacuate personnel from the affected areas and assist in fire suppression efforts.
- Liaise with fire services and other emergency responders during a fire emergency.

2.2 MINE MANAGEMENT TEAM

The **Mine Management Team** plays a crucial role in supporting the Emergency Response Team and ensuring that emergency response resources are available and the necessary actions are taken to comply with legal and regulatory requirements.

Mine Manager
Responsibilities:

- Ensure that the Emergency Response Management Plan is developed, implemented, and maintained.
- Ensure that emergency response procedures are consistent with NSW regulations and industry standards.
- Facilitate the allocation of resources (personnel, equipment, and funding) to implement emergency response measures.
- Ensure that risk assessments and safety audits are conducted regularly to identify potential hazards.
- Oversee the post-incident review process to identify lessons learned and improve response protocols.
- Ensure that environmental risks (e.g., pollution, contamination) are minimized during an emergency.
- Work with the Emergency Response Team to contain and clean up any environmental hazards.
- Report environmental incidents to regulatory authorities as required by law.
- Monitor the long-term environmental impact of the emergency and assist in rehabilitation efforts if necessary.

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Work Health & Safety Manager/ Coordinator Responsibilities:

- Ensure that risk assessments and safety audits are conducted regularly to identify potential hazards.
- Support the Emergency Coordinator with safety-related information and resources.
- Ensure compliance with safety regulations during an emergency response.
- Lead post-incident debriefs and ensure the Emergency Response Management Plan is updated after each incident.
- Facilitate post-incident health monitoring for affected personnel.

2.3 Employees and Contractors

All personnel at the mine, including employees and contractors, have a role in ensuring safety during an emergency. Their responsibilities include:

- **Following Emergency Procedures:** All employees and contractors must understand and follow emergency procedures, including evacuation protocols, reporting emergencies, and using emergency equipment.
- **Participating in Training and Drills:** Employees are expected to attend regular training sessions and participate in emergency drills to ensure they are familiar with emergency response procedures.
- **Reporting Hazards:** Employees should immediately report any unsafe conditions or potential hazards to the Emergency Coordinator or Site Emergency Officer.
- **Assisting with Evacuation:** In the event of an emergency, all employees and contractors must assist in evacuating personnel from dangerous areas and must ensure that they reach designated safe assembly points.

2.4 External Agencies and Stakeholders

In the event of a major emergency, external agencies such as local fire and rescue services, police, ambulance, and environmental agencies will be involved. The roles of these agencies include:

- **Fire and Rescue Services:** Provide firefighting support and rescue operations.
- **Police:** Assist with securing the site and managing traffic or crowd control, if necessary.
- **Ambulance:** Provide medical care and transport for injured or ill workers.
- **Environmental Protection Agencies:** Assist with environmental containment and remediation if hazardous materials are involved.

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3 Hazard Identification and Risk Assessment

3.1 Hazard Identification

Hazard identification is the process of identifying and documenting all potential hazards that could pose a threat to workers, the environment, or the operation of the mine. The purpose is to anticipate possible emergency scenarios so that appropriate risk controls and emergency response procedures can be put in place.

For Badgerys Creek Quarry the potential hazards may include the following:

- Geotechnical Hazards
- Fire and Explosion Hazards
- Mechanical and Electrical Hazards
- Environmental Hazards
- Human Factors and Ergonomic Hazards
- Natural Disasters and External Events

3.2 Risk Assessment

Once hazards have been identified, the next step is to assess the risk they pose. The risk assessment process helps to evaluate the likelihood and consequences of an emergency occurring due to a specific hazard. The goal is to prioritize risks based on their potential impact and likelihood, so that appropriate control measures can be applied.

Risk Assessment Steps:

- **Hazard Identification:** Document the hazards identified in the previous section.
- **Likelihood:** Estimate the likelihood of the hazard occurring based on historical data, expert judgment, and the likelihood of failure.
 - Very Likely: The hazard is expected to occur frequently or on a regular basis.
 - Likely: The hazard could occur periodically or under certain conditions.
 - Unlikely: The hazard may occur rarely or only under extreme conditions.
 - Very Unlikely: The hazard is highly unlikely to occur.
- **Consequence:** Assess the potential consequences of the hazard, including both the immediate and long-term effects on people, equipment, and the environment.
 - **Catastrophic:** Could result in multiple fatalities, severe environmental damage, or total disruption of operations.
 - **Major:** Could result in serious injury or illness, significant equipment damage, or moderate environmental impact.
 - **Moderate:** Could result in minor injury, temporary disruption, or limited environmental impact.
 - **Minor:** No significant injury or environmental impact, but a disruption to normal operations.

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- **Risk Rating:** Calculate the risk level by combining the likelihood and consequence ratings. Use a matrix to assign a risk rating (Low, Medium, High, or Very High).

3.3 Risk Control and Mitigation Measures

For each identified hazard, it is important to implement appropriate control measures to reduce or eliminate the risk. The goal is to eliminate the hazard whenever possible, or, if not feasible, minimize its impact. The following control strategies are commonly used:

- **Elimination:** Remove the hazard entirely (e.g., discontinue a dangerous practice or replace hazardous substances with safer alternatives).
- **Substitution:** Replace the hazard with something less dangerous (e.g., replacing toxic chemicals with less hazardous alternatives).
- **Engineering Controls:** Modify equipment or processes to reduce risk (e.g., installing ventilation systems, automatic shutoff systems, or fire suppression systems).
- **Administrative Controls:** Implement procedures to limit exposure to hazards (e.g., rotating workers, establishing work/rest schedules, training programs, or operational procedures).
- **Personal Protective Equipment (PPE):** Provide workers with appropriate PPE (e.g., gloves, helmets, respirators, hearing protection) to protect against the hazard when other controls are not sufficient.

3.4 Monitoring and Review

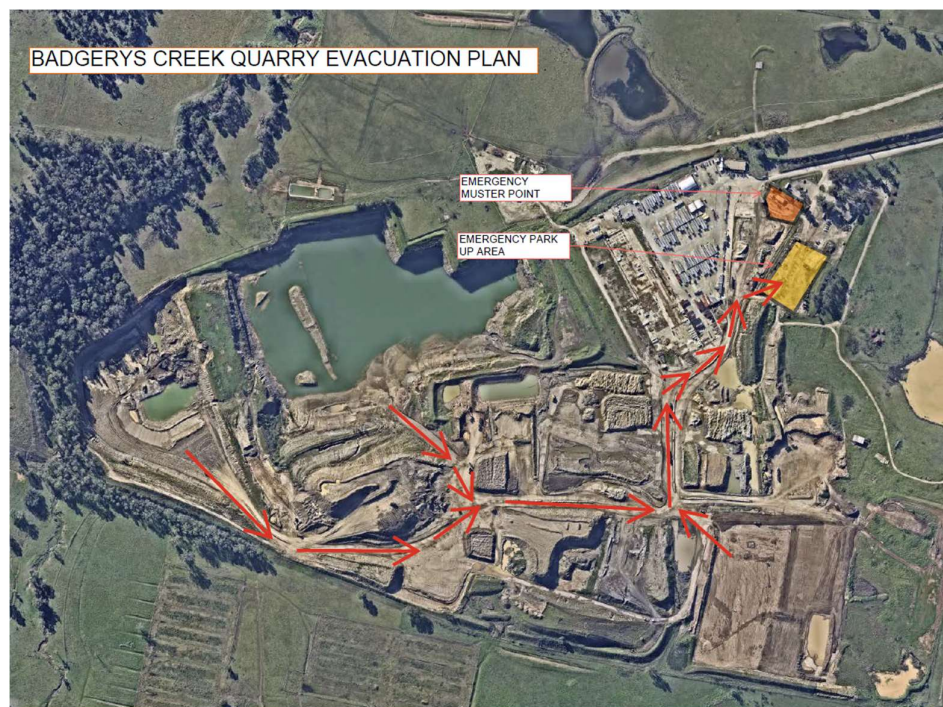
To ensure the effectiveness of the risk control measures:

- Regularly monitor the workplace for new or emerging hazards.
- Conduct periodic reviews and audits of the risk assessment to ensure it remains relevant and up to date.
- Ensure that control measures are properly implemented and maintained

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4 Emergency Evacuation Plan

Overall Site Evacuation Plan



Muster Point Evacuation Plan



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5 Emergency Response Procedures

The following emergency response procedures are designed to address various types of emergencies that may occur at Badgerys Creek Quarry. These procedures aim to protect the safety of workers, minimize the impact on operations, and safeguard the environment.

Throughout any emergency, clear communication is essential. Ensure that all personnel are aware of emergency procedures and how to communicate with emergency response teams.

5.1 General Emergency Response Procedures

These procedures apply to all emergencies, regardless of type:

1. Activate the Emergency Alarm:

- Upon identifying an emergency, the first step is to activate the designated emergency alarm (e.g., siren, horn, or other audible signals) to alert all personnel that an emergency has occurred. Ensure that all workers are aware of the signal and know to respond immediately.

2. Notify the Emergency Response Team (ERT):

- Immediately notify the Chief Warden about the emergency and provide them with details (e.g., type of emergency, location, number of people affected).
- The ERT will assess the situation and implement appropriate emergency procedures.

3. Evacuate or Relocate Personnel:

- Evacuate all personnel from the affected area, following pre-determined evacuation routes to the designated safe assembly points.
- If evacuation is not possible, ensure workers are relocated to a safe area within the mine (e.g., shelter-in-place for certain hazards).

4. Account for All Personnel:

- Once evacuated or relocated to the safe assembly points, conduct a headcount to ensure all personnel are accounted for. This will be done by the Emergency Coordinator or designated personnel using the personnel roster.

5. Communicate with Emergency Services:

- The Communications Officer/ Chief Warden will contact external emergency services (e.g., fire department, ambulance, police) and provide them with the necessary details about the emergency (nature of the event, location, and any hazards present).
- Continue to communicate with emergency services throughout the event, providing them with updates as necessary.

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6. Implement Emergency Control Measures:

- Depending on the emergency, activate specific control measures (e.g., fire suppression systems, gas detection alarms, shutdown procedures for machinery) to mitigate the impact of the emergency.

7. Provide Medical Assistance:

- If injuries are sustained, the First Aid Officer(s) will administer immediate medical treatment and arrange for transportation to medical facilities if necessary.

8. Document Actions:

- Keep a record of all actions taken during the emergency, including notifications made, equipment used, and any decisions made. This documentation will be important for post-incident reviews and investigations.

5.2 Specific Emergency Response Procedures

Below are the detailed procedures for responding to specific types of emergencies that may occur at the mine.

5.2.1 Fire Emergency Procedures

1. Activate the Emergency Alarm:

- If a fire is detected, activate the Emergency alarm system immediately. This will notify all personnel of the fire emergency.

2. Call Fire Services:

- The Communications Officer/ Chief Warden must contact local fire services and inform them of the fire, providing the location and size of the fire, and any risks (e.g., presence of hazardous materials).
- Evacuate the Affected Area:
- Evacuate all personnel from the area affected by the fire. Use the nearest safe evacuation route and head to designated safe assembly points. Avoid using elevators or areas that could lead to smoke inhalation.

3. Use Fire Suppression Equipment (If Safe to Do So):

- If trained and it is safe, personnel should use fire extinguishers, fire hoses, or fire suppression systems to contain small fires or prevent them from spreading until emergency services arrive.

4. Perform Headcount:

- Ensure that all personnel are accounted for once safely evacuated. Report any missing or injured persons to the Emergency Coordinator or emergency services.

5. Follow Fire Services Instructions:

- Upon arrival of fire services, follow their instructions and provide them with any necessary information about the fire's cause, location, and potential risks.

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5.2.2 Medical Emergency Procedures

- 1. Assess the Situation:**
 - If someone is injured or ill, assess the severity of the situation. Ensure that the environment is safe for both the victim and the rescuers.
- 2. Call for Medical Assistance:**
 - Contact the First Aid Officer and emergency services (ambulance) to provide medical assistance. Be prepared to provide specific details about the incident (type of injury, location, and severity).
- 3. Administer First Aid:**
 - The First Aid Officer will administer appropriate first aid treatment until professional medical help arrives. This may include CPR, wound care, or immobilization of fractures.
- 4. Monitor the Victim's Condition:**
 - Keep the victim calm and monitored, ensuring that they are in a safe position and receive the necessary care.
- 5. Prepare for Medical Evacuation:**
 - If the injury requires hospital treatment, prepare the injured person for evacuation to a medical facility by ambulance, coordinating with emergency services.
- 6. Report and Document the Incident:**
 - The Chief Warden should ensure that the incident is documented, including the nature of the injury, how it occurred, and the steps taken to treat and transport the injured person.

5.2.3 Medical Emergency Procedures

- 1. Assess the Situation:**
 - If someone is injured or ill, assess the severity of the situation. Ensure that the environment is safe for both the victim and the rescuers.
- 2. Call for Medical Assistance:**
 - Contact the First Aid Officer and emergency services (ambulance) to provide medical assistance. Be prepared to provide specific details about the incident (type of injury, location, and severity).
- 3. Administer First Aid:**
 - The First Aid Officer will administer appropriate first aid treatment until professional medical help arrives. This may include CPR, wound care, or immobilization of fractures.
- 4. Monitor the Victim's Condition:**
 - Keep the victim calm and monitored, ensuring that they are in a safe position and receive the necessary care.
- 5. Prepare for Medical Evacuation:**

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- If the injury requires hospital treatment, prepare the injured person for evacuation to a medical facility by ambulance, coordinating with emergency services.

6. Report and Document the Incident:

- The Chief Warden should ensure that the incident is documented, including the nature of the injury, how it occurred, and the steps taken to treat and transport the injured person.

5.2.4 Hazardous Material Spill/Release Procedures

1. Alert Personnel:

- Activate the emergency alarm and notify all personnel of the hazardous material spill or release.

2. Isolate the Spill Area:

- Evacuate all personnel from the spill area and prevent access to unauthorized individuals. Set up barriers or warning signs to prevent further contamination.

3. Assess the Hazard:

- The Hazardous Materials Response Team will assess the nature of the hazardous material, including its toxicity, flammability, and potential environmental impact. Use Material Safety Data Sheets (MSDS) to identify the appropriate response actions.

4. Contain the Spill:

- Use spill containment kits or other equipment (e.g., absorbent pads, sand, or berms) to prevent the hazardous material from spreading further.

5. Notify External Agencies:

- Contact the relevant environmental and safety agencies (e.g., local environmental protection agency) to report the spill and seek further advice or assistance if needed.

6. Clean-Up and Disposal:

- The Hazardous Materials Response Team will manage the clean-up of the spill, ensuring that the affected area is properly decontaminated and that the hazardous materials are disposed of according to legal and environmental regulations.

7. Post-Incident Review:

- Conduct a thorough review of the spill incident to identify root causes, assess response effectiveness, and implement corrective actions.

5.2.5 Hazardous Material Spill/Release Procedures

1. Alert Personnel:

- Activate the emergency alarm and notify all personnel of the hazardous material spill or release.

2. Isolate the Spill Area:

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- Evacuate all personnel from the spill area and prevent access to unauthorized individuals. Set up barriers or warning signs to prevent further contamination.
- 3. Assess the Hazard:**
 - The Hazardous Materials Response Team will assess the nature of the hazardous material, including its toxicity, flammability, and potential environmental impact. Use Material Safety Data Sheets (MSDS) to identify the appropriate response actions.
 - 4. Contain the Spill:**
 - Use spill containment kits or other equipment (e.g., absorbent pads, sand, or berms) to prevent the hazardous material from spreading further.
 - 5. Notify External Agencies:**
 - Contact the relevant environmental and safety agencies (e.g., local environmental protection agency) to report the spill and seek further advice or assistance if needed.
 - 6. Clean-Up and Disposal:**
 - The Hazardous Materials Response Team will manage the clean-up of the spill, ensuring that the affected area is properly decontaminated and that the hazardous materials are disposed of according to legal and environmental regulations.
 - 7. Post-Incident Review:**
 - Conduct a thorough review of the spill incident to identify root causes, assess response effectiveness, and implement corrective actions.

5.2.6 Evacuation Procedures

- 1. Activate the Evacuation Alarm:**
 - Upon the identification of an emergency that requires evacuation (e.g., fire, explosion, or hazardous material spill), activate the evacuation alarm.
- 2. Follow the Evacuation Routes:**
 - Personnel should follow designated evacuation routes to the safe assembly points, which should be free from hazards such as smoke, flames, or unstable ground.
- 3. Assist Vulnerable Workers:**
 - Ensure that vulnerable workers (e.g., injured workers, those with disabilities) are assisted in evacuating safely.
- 4. Conduct Headcount:**
 - Once at the safe assembly points, conduct a headcount to ensure that all personnel have evacuated the affected area and are accounted for.
- 5. Remain at the Assembly Point:**
 - Personnel should remain at the assembly point until cleared to return to the mine site or further instructions are provided by the Chief Warden.

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5.2.7 Vehicle to Person Collision

1. **Alert Personnel:**
 - Activate the emergency alarm to notify all personnel of the incident.
2. **Ensure Safety:**
 - Stop all nearby vehicles and machinery to prevent further injury or accidents.
 - Ensure that the area is secured to avoid additional vehicles or workers entering the area.
3. **Call for Medical Assistance:**
 - Immediately notify the First Aid Officer and Chief Warden.
 - Contact emergency services (ambulance) for immediate medical assistance.
 - Provide detailed information on the nature of the incident, including the severity of injuries.
4. **Administer First Aid:**
 - The First Aid Officer will provide first aid as appropriate, such as CPR or wound care, until medical professionals arrive.
 - If there is significant trauma, do not move the injured person unless they are in immediate danger (e.g., fire or further risk of vehicle collision).
5. **Document the Incident:**
 - The Chief Warden should record all actions, including the location of the incident, the type of injuries, and first aid given, for reporting and future analysis.

5.2.8 Vehicle to Vehicle Collision

1. **Activate Emergency Alarm:**
 - Signal the emergency alarm to alert all personnel and halt operations nearby.
2. **Ensure Safety:**
 - Ensure that all vehicles and equipment in the immediate area are stopped to prevent further accidents.
 - If possible, ensure the vehicles involved are positioned safely to avoid additional risks (e.g., fire, fuel leakage).
3. **Check for Injuries:**
 - Assess the injured personnel and provide first aid as necessary. If there are any injuries, call for medical assistance immediately.
4. **Secure the Site:**
 - The Security Officer will help with site security, ensuring that no unauthorized personnel enters the scene and that traffic is redirected if necessary.
5. **Notify Emergency Services:**
 - The Communications Officer will notify local emergency services (police, ambulance, fire services) for any serious injuries or risks (e.g., leaking fuel or fire hazard).
6. **Investigate the Incident:**

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- The Mine Manager and Safety Officer will conduct an investigation to determine the cause of the collision. This could involve reviewing CCTV footage, talking to witnesses, and evaluating the operational environment.

5.2.9 Vehicle to Services (Utility Lines or Equipment)

- 1. Stop All Operations:**
 - Activate the emergency alarm to notify personnel and immediately stop all vehicle operations.
- 2. Assess the Situation:**
 - Identify the type of utility that has been damaged (e.g., electrical lines, gas pipes, water supply) and the associated risks, such as electrocution or gas leaks.
- 3. Isolate the Area:**
 - The Security Officer should cordon off the area to ensure personnel are kept clear of any potential hazards, especially electrical hazards or leaking gas.
- 4. Call Emergency Services:**
 - The Chief Warden should call the relevant utility service provider (e.g., electrical company, gas provider) and emergency services (fire, ambulance) as necessary.
- 5. Ensure Medical Assistance:**
 - If any individuals are exposed to electrical shock or injured by gas, first aid should be administered immediately, and medical services should be called.
- 6. Repair and Assess the Damage:**
 - Coordinate with utility services for repair and mitigation of the incident. The Site Chief Warden will oversee that repair work is done by qualified professionals.
- 7. Document the Incident:**
 - Record the full incident details, including the location of the damage, response actions, and any follow-up actions required.

5.2.10 Electric Shock of Person

- 1. Stop Electrical Equipment:**
 - If it is safe to do so, immediately disconnect or shut down any electrical equipment that is involved to stop further electric shock.
- 2. Call for Medical Assistance:**
 - Contact the First Aid Officer and emergency services (ambulance). Provide details of the incident (i.e., the severity of the shock, the person's condition, and whether CPR is required).
- 3. Administer First Aid:**
 - If trained, the First Aid Officer should administer CPR if the person is not breathing, or treat burns if present, until medical professionals arrive.

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- Do not touch the victim if they are still in contact with the source of electricity. Use a non-conductive object (e.g., a wooden broomstick) to separate the person from the electrical source.

4. Monitor Victim's Condition:

- Keep the victim warm and comfortable, and monitor their vital signs (breathing, pulse) until emergency services arrive.

5. Investigation:

- The Safety Officer will investigate the cause of the electric shock and evaluate if it is related to faulty equipment, failure to use PPE, or other unsafe practices.

5.2.11 Machine Rollover

1. Stop All Nearby Machinery:

- Cease all operations immediately to prevent further incidents, ensuring that surrounding vehicles and equipment are secured.

2. Check for Injuries:

- Check the occupants of the machine for injuries. If there are injuries, immediately provide first aid and call emergency services (ambulance) for further medical assistance.

3. Ensure Safety:

- If the machine is overturned or in a dangerous position (e.g., near a cliff edge or fire hazard), ensure that no one enters the immediate area. Restrict access to authorized personnel only.

4. Stabilize the Machine:

- Trained personnel should work to stabilize the machine to prevent it from further movement or instability until a safe recovery is made.

5. Recovery of the Machine:

- The Chief Warden will coordinate with recovery professionals to right the machine safely.

6. Investigation and Reporting:

- The Safety Officer will conduct a thorough investigation to understand the cause of the rollover, whether it was mechanical failure, human error, or environmental conditions.

5.2.12 Snake and Insect Bites

1. Call for Medical Assistance:

- If a snake or venomous insect bite is suspected, call for immediate medical help (ambulance). Provide the type of bite, the location of the incident, and the condition of the individual.

2. Administer First Aid:

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- For snake bites: Try to keep the victim calm and still to slow the spread of venom. Apply a pressure bandage above the bite site, if appropriate, and keep the affected limb immobilized.
- For insect bites: Clean the wound and apply an ice pack to reduce swelling. For more severe reactions (e.g., anaphylaxis), administer an epinephrine injection if available.

3. Monitor Vital Signs:

- Ensure that the victim's breathing and heart rate are stable. If the victim loses consciousness or has difficulty breathing, begin CPR if trained.

4. Transport to Medical Facility:

- If the bite is from a venomous species, transport the victim to the nearest hospital immediately.

5. Post-Incident Review:

- Review the circumstances of the bite to determine if additional preventive measures are needed, such as improved training, signage, or habitat management.

5.2.13 Drowning (In the Case of Water Bodies on Site)

1. Alert the Emergency Response Team:

- Activate the emergency alarm immediately and alert the Chief Warden and First Aid Officer.

2. Rescue the Victim:

- If the drowning person is within reach and it is safe to do so, rescue the individual from the water. Use life-saving equipment such as a rescue rope or life ring.
- If the victim is unconscious and not breathing, initiate CPR as soon as possible.

3. Call for Emergency Services:

- Notify emergency services for further medical assistance, including paramedics and rescue teams.

4. Provide First Aid:

- The First Aid Officer should provide life-saving first aid, including CPR, until emergency medical personnel arrive.

5. Monitor Condition:

- Continuously monitor the victim's vital signs. If the person regains consciousness, keep them warm and reassured.

5.2.14 Ground Slippage

1. Evacuate the Area:

- If there are signs of ground slippage (e.g., shifting ground, cracking), evacuate all personnel from the immediate area and clear all vehicles and equipment from the danger zone.

2. Alert the Emergency Response Team:

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- Immediately notify the Chief Warden and any necessary personnel, such as engineers or geotechnical specialists, to assess the risk of further ground movement.
- 3. Assess the Risk:**
 - The Safety Officer and Quarry Manager should assess the situation to determine the cause of the ground slippage and its potential impact on structures or personnel.
- 4. Activate Geotechnical Mitigation Measures:**
 - If necessary, implement any geotechnical mitigation measures to prevent further slippage, such as reinforcing slopes or installing supports.
- 5. Monitor and Document:**
 - Continuously monitor the affected area for additional movement and document the incident for future investigations and risk assessments.

5.2.15 Robbery or Hostile Intruder

In the event of a robbery or a hostile intruder on-site, immediate actions should be taken to minimize the risk to personnel, protect company assets, and engage the appropriate authorities.

1. Alert Personnel and Notify Authorities

Activate the Emergency Alarm:

- If safe to do so, activate the emergency alarm to notify all personnel of a security breach. Depending on the severity of the situation, a designated “hostile intruder” signal may be used (e.g., a specific code word or alarm signal).

Call Security and Emergency Services:

- Immediately contact the Site Supervisor or Quarry Manager.
- Contact local law enforcement (police) and provide details on the situation, such as the number of intruders, their location, and any weapons or threats involved.
- If possible, also notify your Emergency Coordinator and Management Team to coordinate further response actions.

2. Ensure Safety and Evacuate Personnel (If Possible)

Do Not Engage the Intruder:

- In most situations, avoid confrontation with the intruder. The primary focus is on ensuring the safety of all personnel on-site.
- If the intruder is in a specific area (e.g., office, warehouse), lockdown that area if safe to do so, and prevent others from entering.

Evacuate or Shelter-in-Place:

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- If the situation allows, evacuate personnel to designated safe assembly points.
- If evacuation is not possible or would place personnel at greater risk, initiate a shelter-in-place procedure. Secure all doors and windows, turn off lights, and remain out of sight.
- Make use of safe rooms or shelters if available.

3. 3. Secure the Area

Lockdown the Site:

- Ensure that all external entry points (gates, doors) are locked or secured to prevent the intruder from leaving the area or moving around freely.
- The Security Officer should immediately assess the site layout and ensure key areas such as the control room, offices, and any sensitive areas are secured.

Monitor and Communicate:

- If possible, use surveillance cameras and security systems to track the movements of the intruder and gather as much information as possible.
- The Communications Officer should establish continuous communication with local law enforcement and relay real-time updates on the intruder's actions and whereabouts.

4. 4. Protect Critical Assets

Secure Valuable Equipment and Materials:

- If the situation involves a robbery, attempt to secure valuable equipment, materials, or assets that could be stolen, but do not put personnel at risk.
- Ensure sensitive or critical data is protected (e.g., lock servers, remove access to sensitive information) if possible.

Document and Record:

- If the intruder has made threats or engaged in theft, ensure that all relevant documentation and evidence are collected. This may include CCTV footage, eyewitness accounts, and other records.

5. 5. Law Enforcement Engagement and Resolution

Provide Information to Law Enforcement:

- Once law enforcement arrives on-site, provide them with all relevant information about the intruder(s), including physical descriptions, weapons (if any), and specific actions taken by the intruder(s).

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- Work closely with law enforcement to ensure that personnel remain safe and that the intruder is apprehended with minimal risk.

Follow Law Enforcement Instructions:

- Allow law enforcement to take control of the situation once they arrive. Do not intervene unless specifically directed to do so by law enforcement officials.

Mental Health and Support: In the aftermath of an emergency, workers may require psychological support. Ensure that appropriate counselling and support services are available.

5.2.16 Flood / Inundation (Bund Overtopping or Pit Flooding)

Trigger:

- Heavy rain event (≥ 20 mm/24 h or ≥ 50 mm/6 h), bund overtopping, sump/pump failure, rapid water ingress to pits/haul roads.

Immediate Actions:

- Activate emergency alarm and **cease work** in affected areas.
- **Evacuate to high ground/muster points** using safe routes; barricade flooded zones.
- Shut down non-essential power/equipment in inundated areas.

Control & Coordination:

- Deploy pumps per SWMS; monitor discharge to approved containment.
- Supervisor conducts flood assessment; do **not** re-enter until hazards removed.

Authorisations for Re-entry:

- **Supervisor** confirms bund integrity, freeboard, road stability;
- **Quarry Manager** authorises restart.

References: Inundation PCP (Drainage, Bunds, Pumping) + TARP triggers; Post-Weather Inspection Procedure.

5.2.17 Bushfire / Grassfire (External Threat)

Trigger:

- RFS Watch/Act/Emergency alerts; smoke plume approaching site; fire within 5 km or as directed by authorities.

Immediate Actions:

- Suspend hot works and high-risk operations; shut down non-essential plant.
- Establish water carts and fire units on standby; clear access/egress routes.
- Prepare for partial or full site evacuation; secure flammables.

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Evacuation & Shelter:

- If directed by authorities or fire encroaches, evacuate to designated assembly or safe refuge (pre-identified).

Liaison:

- Chief Warden liaises with RFS/Fire & Rescue and updates crews via UHF/all-call.

References:

- Fire & Explosion PCP; Fire Prevention Systems; Site Bushfire Readiness Checklist.

5.2.18 Dust / Low-Visibility Event

Trigger:

- Visibility degraded below safe operating distance; fixed monitors/personal sampling indicate exceedance; high winds exceeding site threshold.

Immediate Actions:

- Stop traffic on exposed haul roads; restrict to essential corridors at reduced speed.
- Increase water carting/sprays; suspend dust-generating tasks.
- Issue respiratory protection (P2/P3) in designated zones.

Escalation:

- If visibility remains poor → site stand-down for affected areas until conditions improve.

References:

- Dust & Airborne PCP; TMP; Weather TARP.

5.2.19 Gas Main Strike / Suspected Gas Release

Trigger:

- Contact with marked gas main; smell/noise; detector alarms.

Immediate Actions:

- Stop work, shut down engines, prohibit ignition sources; evacuate upwind; establish exclusion zone.
- Notify 000 and gas utility; Chief Warden coordinates isolation.

Control:

- Do not attempt repairs; await utility and emergency services.

References:

- Fire & Explosion PCP; Services/Utilities controls; Dial-Before-You-Dig records.

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5.2.20 Lightning / Severe Weather

Trigger:

- Lightning observed within 10 km or Bureau alert; severe storm fronts; wind speeds above site threshold.

Immediate Actions:

- Cease work at heights, cranes, refuelling, and near tall structures/lines; shelter in vehicles/buildings.
- Suspend blasting/hot works (if any).

Stand-down/All-clear:

- Resume only 30 minutes after last strike within 10 km and when conditions are verified safe by Supervisor.

References:

- Roads PCP; Inundation PCP; Weather TARP.

5.2.21 Hydraulic Burst / Stored Energy Release (Mechanical)

Trigger:

- Hose/pipe burst, high-pressure leak, uncontrolled movement, failed isolation.

Immediate Actions:

- Stop plant, isolate, depressurise via approved procedures; evacuate immediate area.
- First aid for injection injuries—treat as medical emergency; call ambulance.

Recovery:

- Only competent personnel to repair; verify with Workshop Manager/OEM; LOTO in place.

References:

- Mechanical PCP (Stored Energy), Hot Work/LOTO permits.

6 Training and Drills

Effective **training** and **drills** are essential to ensure that all personnel are prepared to respond efficiently to emergencies. Regular practice ensures that emergency procedures are well-understood, and personnel are familiar with the tools, roles, and actions required during an emergency. These activities also help to identify areas for improvement and keep response skills sharp.

6.1 Objectives of Training and Drills

1. **Ensure all personnel understand their roles and responsibilities** during an emergency.
2. **Test the effectiveness** of emergency response procedures in a realistic setting.
3. **Identify gaps** in knowledge, equipment, or procedures that may need to be addressed.

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4. **Reinforce communication protocols** and coordination among different teams during an emergency.
5. **Ensure compliance** with legal and regulatory requirements for emergency preparedness and response.
6. **Foster a culture of safety and readiness** among all workers, supervisors, and management.

6.2 Training Program

1. Initial Training for New Employees

- **Induction Training:** All new employees must receive training as part of their induction process. This should include:
 - An overview of the **Emergency Response Plan (ERP)**.
 - Familiarization with **emergency procedures**, including evacuation routes, emergency exits, and assembly points.
 - Introduction to the roles and responsibilities of emergency response personnel (e.g., Emergency Coordinator, First Aid Officer, Security Officer).
 - Overview of **emergency communication systems** (e.g., alarms, two-way radios, mass notification systems).
 - Awareness of **site-specific hazards** (e.g., machinery, chemicals, environmental risks).

2. Ongoing Training

- **Refresher Courses:** Conduct regular refresher training to ensure that all employees remain familiar with emergency procedures and are up to date on any changes to policies or procedures.
- **Role-Specific Training:** Personnel who have specific emergency response roles (e.g., First Aid Officers, Security, Supervisors) should receive specialized training related to their roles, including:
 - **First Aid and CPR:** All personnel should be trained in basic first aid and CPR techniques, with designated staff receiving advanced first aid training.
 - **Fire Safety:** Training on fire response, evacuation, and the use of fire extinguishers.
 - **Search and Rescue:** Training on how to assist in searching for and rescuing injured or trapped personnel.
 - **Hazardous Materials:** Training on handling hazardous materials (if applicable) and understanding the proper response to chemical spills or toxic exposures.

3. Emergency Response System Training

- All personnel must understand how to use the **emergency communication system**, including:
 - How to activate alarms or emergency signals.
 - How to use two-way radios, mobile phones, or other communication tools during an emergency.

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- How to report incidents to the **Chief Warden and/or Quarry Manager**.

4. Emergency Procedure Awareness

- **Scenario-Based Training:** Personnel should be trained using realistic scenarios that could occur on-site, such as fire, medical emergencies, or hostile intruder situations.
- **De-escalation Training:** For hostile intruder or robbery situations, staff should receive training on non-confrontational de-escalation techniques and maintaining composure in high-stress situations.

5. Legal and Regulatory Requirements

- Employees should be aware of the **legal and regulatory** obligations surrounding emergency preparedness, including workplace health and safety laws, environmental regulations, and industry-specific requirements (e.g., mining regulations in NSW).
- Training should include reporting requirements, record-keeping protocols, and compliance with safety audits and inspections.

6.3 Drills

1. Frequency of Drills

- **Quarterly Drills:** Conduct full-scale emergency drills at least once per quarter to simulate real emergency scenarios. These drills should test the response to different types of incidents (e.g., vehicle accident, fire, medical emergency, hostile intruder).
- **Monthly Tabletop Exercises:** These are discussion-based exercises that allow team members to work through emergency scenarios without physically acting them out. This can help reinforce roles, responsibilities, and decision-making processes.
- **Random Drills:** Perform unannounced, surprise drills to test how well personnel react under pressure and whether they can execute procedures without prior preparation.

2. Types of Drills

- **Fire Drills:** Simulate a fire emergency, ensuring that all personnel know how to evacuate the site safely and quickly. This includes practicing the use of fire alarms, fire extinguishers, and evacuation routes.
- **Medical Emergency Drills:** Simulate a medical emergency, such as an injury or illness, to ensure that first responders know how to assess and treat injuries and coordinate with emergency services for transport if necessary.
- **Hostile Intruder Drills:** Simulate a hostile intruder or robbery scenario to practice lockdown procedures, evacuation, or the process of notifying authorities.
- **Vehicle Accident Drills:** Simulate a vehicle-to-person or vehicle-to-vehicle accident. This drill should include first aid treatment, securing the area, and communicating with emergency services.
- **Hazardous Materials Drills:** Simulate a chemical spill or exposure to toxic substances (if applicable). Ensure all personnel are familiar with spill response procedures, the use of personal protective equipment (PPE), and decontamination procedures.

3. Evacuation Drills

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- **Full Evacuation Drills:** Conduct full evacuation drills to test how quickly and efficiently personnel can leave the site and assemble at designated safe points. These drills should be done periodically and cover various emergency scenarios that would require evacuation.
- **Shelter-in-Place Drills:** In cases where evacuation is not feasible (e.g., during a hostile intruder event or toxic spill), personnel should practice shelter-in-place procedures.

4. Evaluation of Drills

- **After-Action Review (AAR):** Following each drill, conduct an After-Action Review (AAR) to evaluate how well the drill went. This includes:
 - Assessing response times, decision-making, and coordination.
 - Identifying any weaknesses or areas where performance could be improved.
 - Gathering feedback from participants and external observers.
- **Report Findings:** Document the findings from each drill, including strengths and areas for improvement. Use this feedback to adjust training programs and refine emergency procedures.

6.4 Assessment and Evaluation

1. Competency Assessment

- After training, employees should be assessed to ensure they have retained the necessary knowledge and skills to perform their roles in an emergency.
- Assessments may include:
 - Written tests (e.g., on emergency procedures and safety protocols).
 - Practical exercises (e.g., fire drills, first aid scenarios).
 - Observational assessments during drills or simulations.

2. Feedback and Improvement

- Encourage open feedback from employees and emergency responders after each drill or training session.
- Use feedback to refine emergency procedures, update training content, and address any gaps in preparedness.
- **Continuous Improvement:** Emergency response training and drills should be continually updated based on lessons learned from previous incidents, drills, and feedback.

6.5 Documentation and Record-Keeping

- **Training Records:** Maintain records of all training sessions, including the dates, topics covered, trainers, and participants. This helps demonstrate compliance with training requirements and ensures that employees are up to date on emergency procedures.
- **Drill Reports:** Document all drill activities, including the type of drill, the scenario, the evaluation results, and any follow-up actions. This ensures that the company can track the

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effectiveness of its training program over time and provides valuable information for future drills.

- **Audit and Review:** Conduct periodic audits to ensure that training and drills are being carried out as planned and that records are complete and up to date.

6.6 Continuous Improvement and Adaptation

The **Training and Drills** program should be continuously adapted and improved based on the following:

- Results from post-incident reviews and after-action reviews.
- Changes in emergency procedures or regulations.
- Feedback from drills and real emergency situations.
- Advances in technology, equipment, and response strategies.

Regular updates and adjustments will help ensure that your mine site is always prepared for potential emergencies.

7 Post-Incident Review

The Post-Incident Review (also known as an After Action Review or AAR) is conducted after an emergency to analyze the response, assess the effectiveness of the emergency management plan, and ensure continuous improvement. This review helps to identify strengths and weaknesses, refine emergency procedures, and ensure that personnel are better prepared for future emergencies.

7.1 Objectives of the Post-Incident Review

1. **Evaluate the response effectiveness** to the emergency and identify what went well.
2. **Identify areas for improvement** in the Emergency Response Plan (ERP) and procedures.
3. **Gather feedback** from all involved parties (emergency responders, management, workers, external agencies) to gain different perspectives on the response.
4. **Document lessons learned** and apply them to future preparedness activities, training, and drills.
5. **Ensure compliance** with all regulatory and safety requirements, and update the plan as necessary.

7.2 Key Steps in the Post-Incident Review Process

1. **Incident Documentation and Initial Report**
 - As soon as the emergency is under control, an **Initial Incident Report** should be created by the **Chief Warden, Quarry Manager and WHS Manager**. This report should include basic details of the incident, such as:

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- Date and time of the emergency
- Type of emergency (e.g., fire, medical, hostile intruder)
- Affected areas or departments
- Actions taken during the emergency response
- Injuries or damages (if any)
- Actions taken to resolve the situation
- Emergency services or authorities involved
- This report serves as a foundation for the post-incident review process.

2. Assemble the Review Team

- The **Review Team** should consist of key personnel involved in the response, including:
 - **Quarry Manager:** Overall responsibility for the review.
 - **Chief Warden:** To provide insights on on-the-ground response actions.
 - **Communications Officer:** To assess the effectiveness of communication during the emergency.
 - **First Aid Officer:** To provide feedback on medical response.
 - **Security Officer:** To review the security aspects of the response.
 - **External Agencies:** If applicable, invite representatives from emergency services (fire, police, ambulance) to provide input.
- The team will collaboratively review the response and identify any lessons learned.

3. Debriefing with All Involved Personnel

- Hold a **debriefing session** with all personnel involved in the emergency response. This includes internal team members (e.g., Emergency Response Team) and any external agencies (e.g., local police, medical teams).
- During this session, gather feedback from everyone on:
 - What actions were taken during the emergency.
 - What went well and what could have been improved.
 - Any challenges faced during the response.
 - Suggestions for improving future response procedures.
- **Confidentiality:** Ensure that the debriefing session is conducted in a way that encourages open, honest feedback from all participants.

4. Conduct a Root Cause Analysis

- Perform a **Root Cause Analysis (RCA)** to identify any underlying issues that may have contributed to the emergency. This is important for addressing systemic issues that could lead to similar emergencies in the future.
- RCA could involve:

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- Assessing whether any safety protocols or procedures were inadequate or not followed.
- Reviewing equipment functionality and maintenance records to determine if any failures occurred.
- Identifying gaps in training or preparedness.
- Evaluating any environmental or operational hazards that may have contributed to the incident.
- The **WHS Manager** and **Quarry Manager** should lead this analysis and document findings.

5. Assess the Effectiveness of the Emergency Response Procedures

- Evaluate the **Emergency Response Procedures** used during the incident. Specifically, review:
 - **Activation of emergency alarms** and notification systems—Were these activated promptly and communicated clearly?
 - **Evacuation or shelter-in-place actions**—Were personnel evacuated quickly and safely, or did shelter-in-place protocols function as intended?
 - **Role of personnel**—Did everyone understand their roles and responsibilities during the emergency?
 - **Coordination with emergency services**—Was the coordination with fire, ambulance, police, or other agencies effective?
 - **Communication systems**—Did communication tools (e.g., two-way radios, mobile phones, mass notification systems) work effectively during the emergency?
- Gather feedback from all personnel involved in the emergency response to identify strengths and weaknesses in the procedures.

6. Analyze the Impact on Personnel, Equipment, and Operations

- Review the **impact on personnel**:
 - Were there any injuries or fatalities? If so, what caused them, and could they have been prevented?
 - Did any employees experience psychological or emotional effects from the incident? Consider providing support such as counseling if needed.
- Review the **impact on equipment**:
 - Were any key pieces of equipment damaged, and how did this affect operations?
 - Were there any equipment failures or malfunctions during the emergency response? Were they addressed in a timely manner?
- Review the **impact on operations**:
 - How did the emergency affect production or operations at the mine? Was there a halt in operations or significant downtime? How quickly was the site able to resume normal operations?

7. Review Compliance with Legal and Regulatory Requirements

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- Ensure that the response to the emergency met all **legal and regulatory requirements**:
 - Was the response in line with Work Health and Safety (WHS) regulations, including incident reporting and documentation?
 - Were all required notifications made to authorities (e.g., local government, environmental regulators)?
 - Were required permits, insurance, or reporting requirements followed?
- **Compliance Officer** or **General Manager** should lead the review of legal and regulatory compliance.

8. Develop an Action Plan for Improvement

- Based on the findings from the root cause analysis, feedback from personnel, and the assessment of the emergency response procedures, develop an **Action Plan for Improvement**.
- This plan should include:
 - **Corrective actions** to address identified weaknesses in the response (e.g., equipment failures, communication gaps, inadequate training).
 - **Preventative measures** to reduce the likelihood of similar incidents in the future (e.g., additional training, upgrades to safety systems).
 - **Timeline** for implementing corrective actions and improvements.
 - **Responsible parties** for implementing each improvement action.
- Assign a **timeline for completion** and schedule follow-up reviews to track progress on the improvement actions.

7.3 Reporting and Documentation

1. Post-Incident Report:

- A comprehensive **Post-Incident Report** should be compiled, summarizing the entire incident, the response, and the findings of the post-incident review.
- The report should include:
 - Incident description and timeline.
 - Emergency response assessment (what went well, what could be improved).
 - Root cause analysis findings.
 - Impact on personnel, operations, and equipment.
 - Action Plan for improvement, including corrective and preventative actions.

2. Incident Documentation and Compliance:

- Ensure that all documentation related to the incident, including incident reports, communications, debriefing notes, and corrective action plans, is properly filed and retained in compliance with company policies and legal requirements.

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- **Quarry Manager** should ensure that these reports are reviewed and signed off for accuracy and completeness.

7.4 Implement Improvements and Monitor Progress

1. Implement Corrective Actions:

- Ensure that the **Action Plan** developed during the post-incident review is implemented. This may involve updating emergency procedures, providing additional training, improving equipment, or adjusting safety protocols.
- Communicate the action items and timelines to all relevant personnel.

2. Monitor Effectiveness:

- Monitor the implementation of corrective actions and improvements to ensure they are effective in addressing the issues identified during the post-incident review.
- Follow-up reviews or audits should be conducted to evaluate whether the changes have had a positive impact on safety and emergency preparedness.

3. Continuous Improvement:

- The **Post-Incident Review** process is a critical part of fostering a **culture of continuous improvement**. Encourage all personnel to contribute ideas for improving safety, communication, and emergency preparedness.
- Use feedback and findings from each post-incident review to refine your Emergency Response Management Plan, ensuring the mine site is always improving its emergency response capabilities.

8 Audit

The Audit process ensures that the Emergency Response Plan (ERP) is regularly assessed for compliance, effectiveness, and continuous improvement. Audits help identify gaps, confirm that procedures are being followed, and validate that the necessary resources, equipment, and personnel are in place to respond to emergencies efficiently.

8.1 Objectives of the Audit Process

1. **Evaluate the effectiveness** of the Emergency Response Plan in real-life situations and during drills.
2. **Ensure compliance** with relevant regulations, industry standards, and best practices.
3. **Verify that emergency response resources** (personnel, equipment, communication systems) are properly maintained and adequate.
4. **Identify gaps or weaknesses** in the plan, procedures, or training programs.
5. **Promote continuous improvement** in the site's emergency preparedness and response capabilities.

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8.2 Frequency of Audits

1. Annual Internal Audit

- Conduct a comprehensive internal audit of the Emergency Response Plan at least once per year. The audit should assess:
 - The adequacy of emergency procedures.
 - The alignment of the plan with current site conditions and regulations.
 - The availability and readiness of emergency resources and equipment.
 - Compliance with legal and regulatory requirements, including workplace safety and environmental standards.

2. Ongoing Spot Audits

- Perform periodic spot audits throughout the year to ensure that emergency procedures are being followed, equipment is being maintained, and personnel are adequately prepared.
- These audits can be conducted on a random or scheduled basis, focusing on specific areas of the ERP, such as first aid equipment, fire safety systems, or evacuation protocols.

3. Post-Incident Audits

- After any emergency or drill, conduct an audit to evaluate the response effectiveness and identify areas of improvement.
- This audit should examine the response time, coordination, communication, and outcomes, and help refine the plan based on lessons learned from real incidents or drills.

APPENDIX 4: Health Control Plan

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HEALTH CONTROL PLAN



BADGERYS CREEK QUARRY

DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	13/08/2025	Review and Updates following Risk assessment reviews	BN
2.	4/11/2025	Review and Updates following Risk assessment reviews	BN

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1. PURPOSE

This Health Control Plan (HCP) identifies and manages the health hazards associated with operations at **Badgerys Creek Quarry (BCQ)**. It supports the implementation of the Safety Management System (SMS) by establishing measures to prevent or minimise risks to the health of all workers, contractors, and visitors.

The plan ensures compliance with **Clause 30** of the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2022*, requiring mine operators to identify health hazards and define the control measures to manage them.

2. SCOPE

This HCP applies to all MQ employees, subcontractors, and visitors who may be exposed to health hazards at the Badgerys Creek Quarry site, including:

- Quarrying and extraction
- Rehabilitation operations
- Crushing and screening plants
- Material transport and haul road operations
- Maintenance activities
- Stockpile management and blending
- Site shed compound area

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3. REFERENCES

3.1 Legislation

- Work Health and Safety Act 2011
- Work Health and Safety Regulation 2017
- Work Health and Safety (Mines and Petroleum sites) Regulation 2022

3.2 Codes of Practice

- Safe Work Australia: Managing the Risks of Airborne Contaminants
- Safe Work Australia: Managing Noise and Preventing Hearing Loss at Work
- SafeWork NSW: Managing the Work Environment and Facilities
- SafeWork NSW: Managing the Risk of Fatigue at Work
- SafeWork NSW: Welding Processes

3.3 Australian Standards

- AS 2985:2009 – Respirable Dust Sampling
- AS 3640:2009 – Inhalable Dust Sampling
- AS/NZS 1269.1:2005 – Occupational Noise Management

4. HEALTH HAZARDS

Hazard	Example Sources	Potential Health Effects
Respirable Crystalline Silica (RCS)	Crushing, haul roads, stockpiles	Silicosis, COPD, lung cancer
Inhalable Dust	Material handling, loading	Respiratory irritation, reduced lung function
Diesel Particulate Matter (DPM)	Mobile plant, haul trucks	Respiratory illness, cancer risk
Noise	Crushers, dozers, trucks	Hearing loss, tinnitus, fatigue
Whole Body / Hand-Arm Vibration	Excavators, compactors	Musculoskeletal disorders, circulation impairment
Ultraviolet (UV) Radiation	Outdoor exposure	Sunburn, skin cancer
Heat Stress	Hot environments, PPE use	Dehydration, heat exhaustion, stroke
Fatigue	Long shifts, repetitive tasks	Reduced alertness, accidents
Chemical Exposure	Fuels, lubricants, welding fumes	Dermatitis, respiratory irritation
Biological Hazards	Stagnant water, animals	Infection, bites, allergies

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Dust and airborne contaminants present at this site include:

- Respirable crystalline silica (RCS)
- Inhalable dust from overburden, clay, or other materials
- Diesel particulate matter (DPM)
- Welding fumes, smoke from burning, and blasting gases

5. RISK ASSESSMENT SUMMARY

Hazard	Likelihood (uncontrolled)	Potential Consequence	Risk Rating (uncontrolled)	Key Controls Implemented	Residual Risk
Dust & RCS	Likely	Severe illness	High	Water suppression, enclosed cabins, PPE	Medium
Noise	Likely	Hearing loss	High	Engineering isolation, PPE, audiometric testing	Medium
Fatigue	Possible	Reduced performance	Medium	Rostering, fatigue management PHMP	Low
UV Exposure	Likely	Burns, skin cancer	High	PPE, shade structures, scheduling	Medium
Heat Stress	Possible	Heat stroke	Medium	Hydration, rest breaks, monitoring	Low

6. CONTROL FRAMEWORK

Hierarchy of Control Applied:

1. **Elimination / Substitution:** Avoid dry sweeping; use water suppression instead.
2. **Engineering Controls:** Dust suppression sprays, enclosed cabins, ventilation, plant design.
3. **Administrative Controls:** Safe work procedures, task rotation, maintenance, signage.
4. **PPE:** P2/P3 respirators, hearing protection, gloves, sun protection.

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All controls are detailed within supporting PCPs and PHMPs (e.g., Dust & Airborne Contaminants PHMP, Noise PCP, Fatigue PHMP).

7. MONITORING & TESTING PROGRAMS

Monitoring Type	Standard / Frequency	Responsible Person	Record Form / Output
Respirable Dust Sampling	AS 2985:2009, quarterly	HSE Coordinator	Air Monitoring Report
Inhalable Dust Sampling	AS 3640:2009, quarterly	HSE Coordinator	Air Monitoring Report
DPM Sampling	Biannually	HSE Coordinator	DPM Report
Noise Dosimetry	Annually	HSE Coordinator	Hearing loss, tinnitus, fatigue
Heat Stress	Daily (summer)	Supervisors	Environmental Monitoring Log
Fit-for-Work Screening	Pre-employment & as required	HR / HSE	Sunburn, skin cancer Fit-for-Work Register
Health Surveillance	Annual (silica, hearing, etc.)	HSE / Medical Provider	Health Records

8. FIT-FOR-WORK & HEALTH MONITORING

- All workers must be medically fit and competent to perform assigned tasks.
- MQ's Fit-for-Work procedure addresses fatigue, drugs and alcohol, and physical capacity.
- Periodic health surveillance includes:
 - **Audiometric testing** every 2 years
 - **Respirable crystalline silica** health checks annually
 - **Vision and skin checks** as required
- Results are reviewed confidentially and corrective actions initiated where exposures approach Workplace Exposure Standards.

9. CONSULTATION, TRAINING & COMMUNICATION

- Workers and contractors are consulted through Toolbox Talks, Health and Safety Committee, and incident reviews.
- Training includes site induction, refresher training on dust/noise/heat hazards, and proper PPE use.
- Exposure monitoring results and corrective actions are communicated to affected

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personnel.

10. REVIEW & CONTINUOUS IMPROVEMENT

Trigger Event	Review Action	Responsible Person
Annual Review Date	Comprehensive review of all health programs	Mining Manager
Incident or Exposure Exceedance	Conduct investigation, update controls	HSE Coordinator
Change in Process or Equipment	Review hazard register and monitoring	Site Supervisor
Regulatory Update	Align plan to updated legal or Code requirements	HSE Coordinator

11. CROSS-REFERENCE TO RELATED DOCUMENTS

- PHMP – Dust & Airborne Contaminants (BCQ)
- PCP – Roads & Traffic Management
- Fit-for-Work Procedure (IMS-07.050)
- Emergency Response Plan (IMS-ERP-07.001)

APPENDIX 5: Dust & Airborne PCP

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PRINCIPAL CONTROL PLAN



DUST & AIRBORNE CONTAMINANTS BADGERYS CREEK QUARRY

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1. TRIGGER ACTION RESPONSE PLAN (TARP)

Trigger Level	Example Indicators	Actions
Level 1 – Normal	Dust levels less than the height of machine wheels/ tracks	Continue operations; maintain standard controls; monitor conditions.
Level 2 – Caution	Dust levels rising to the height of machine wheels/ tracks OR visibility reduced <200m	Apply additional water suppression; reduce vehicle speed; rotate staff to reduce exposure; verify PPE use.
Level 3 – Exceedance	Dust levels exceed the height of machine wheels/ tracks OR visibility <50m	Stop dust-generating activities; evacuate to safe upwind location; investigate cause; report to Site Manager; implement corrective actions.

2. DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	12/08/2025	Review and Updates following Risk assessment reviews	BN
2.	9/09/2025	Review and Updates following Risk assessment reviews	BN
3.	30/10/2025	Review and Updates following review	BN

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3. PURPOSE

This Principal Control Plan (PCP) provides detailed operational controls, procedures, and responsibilities for managing dust and airborne contaminants at Badgerys Creek Quarry.

It supports the **PHMP – Dust & Airborne Contaminants**, which identifies the hazard, risk assessment, and overarching management strategies.

4. SCOPE

Applies to all dust-generating activities and potential airborne contaminants from:

- Quarry and rehabilitation operations
- Crushing and screening plants
- Material handling and haul roads
- Drilling and blasting
- Stockpiles
- Maintenance areas

5. REFERENCES

- **PHMP – Dust & Airborne Contaminants** (Badgerys Creek Quarry)
- Work Health and Safety (Mines and Petroleum sites) Regulation 2022
- **AS 2985-2009 Workplace atmospheres - Method for sampling and gravimetric determination of respirable dust.**
- **AS 3640-2009 Workplace atmospheres – Method for sampling and gravimetric determination of inhalable dust.**
- **NIOSH 5040 – Diesel Particulate Matter (as elemental carbon)**
- **AS3853.1 – Health and safety in welding and allied processes – Sampling of airborne particles and gases in the operator’s breathing zone. Part 1 Sampling of airborne particles**
- **Remove the date for the Safe Work Australia Workplace Exposure standards for Airborne Contaminants**

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6. ROLES & RESPONSIBILITY – MULGOA QUARRIES PTY LTD

6.1 Directors & General Manager

- Provide strategic leadership and demonstrate commitment to managing dust and airborne contaminants.
- Ensure adequate funding, staffing, and equipment are provided to implement this PCP effectively.
- Approve the PCP and any significant updates following reviews.
- Receive and review high-level monitoring reports, incident summaries, and audit outcomes.
- Ensure the organisation complies with all relevant legislation and regulatory requirements.
- Hold the Quarry Manager accountable for the implementation and performance of the plan.
- Promote a positive safety culture where dust control is a shared priority across all operations.

6.2 Quarry Manager

- Ensure the PCP is implemented and integrated into daily operations.
- Allocate adequate resources (personnel, equipment, training, budget) to control dust and airborne contaminants.
- Ensure all legislative and regulatory requirements are met.
- Review and approve dust monitoring results, incident reports, and control measure effectiveness.
- Escalate significant exceedances to corporate management and the Mines Regulator as required.
- Lead post-incident reviews and ensure corrective actions are completed.

6.3 Site Supervisor

- Conduct regular inspections of work areas for dust hazards.
- Monitor dust levels during shifts using visual indicators, personal monitors, or real-time devices.
- Enforce the use of controls, including water suppression, vehicle speed limits, and ventilation.
- Initiate Trigger Action Response Plan (TARP) measures immediately when trigger levels are reached.
- Stop work when dust exceeds safe thresholds or visibility is critically reduced.
- Provide toolbox talks and reinforce safe work procedures.

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6.4 Leading Hand

- Conduct regular inspections of work areas for dust hazards.
- Monitor dust levels during shifts using visual indicators, personal monitors, or real-time devices.
- Enforce the use of controls, including water suppression, vehicle speed limits, and ventilation.
- Initiate Trigger Action Response Plan (TARP) measures immediately when trigger levels are reached.
- Stop work when dust exceeds safe thresholds or visibility is critically reduced.
- Provide toolbox talks and reinforce safe work procedures.

6.5 WHS Manager & WHS Coordinators

- Maintain and implement the dust and airborne contaminants monitoring program.
- Schedule and conduct regular personal and static sampling in accordance with regulatory guidelines.
- Analyse results against Workplace Exposure Standards (WES) and internal targets.
- Report all exceedances to the Site Manager and regulatory authorities where required.
- Maintain all records of dust monitoring, inspections, and TARP activations.
- Lead investigations into dust exceedances and recommend corrective actions.
- Provide specialist advice on dust control technologies and methods.

6.6 Maintenance Team

- Inspect, service, and maintain dust suppression systems (water trucks, sprays, misters).
- Maintain and calibrate dust monitoring and sampling equipment.
- Ensure fixed and mobile plant ventilation systems are functional and compliant.
- Respond promptly to breakdowns that could affect dust control.
- Keep maintenance records for all relevant equipment.

6.7 Operators, Contractors & Visitors

- Follow all dust control procedures and safe work instructions.
- Correctly wear and maintain issued PPE (e.g., P2/P3 respirators) in designated areas.
- Participate in training on dust hazards, health risks, and control measures.
- Immediately report any visible dust hazards, damaged suppression equipment, or symptoms of dust exposure to a supervisor.
- Stop work if safe conditions cannot be maintained and notify the supervisor.
- Cooperate with dust monitoring and health surveillance programs.

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7. CONTROL MEASURES

7.1 Dust from Haul Roads & Traffic

Engineering: water carts, road surfacing, dust suppressants.

Administrative: speed limits, road sweeping/grading, TMP compliance.

Elimination: stop traffic during extreme dust conditions.

PPE: P2/P3 respirators, high-vis for operators.

7.2 Crushing & Screening Plant

Engineering: enclosed conveyors, water sprays/misters, dust extraction systems.

Administrative: daily inspection of sprays, housekeeping to prevent build-up.

Elimination: isolate or shut down plant during uncontrolled dust events.

PPE: respirators, goggles, hearing protection.

7.3 Stockpiles & Material Handling

Engineering: water sprays, stockpile sealing/compaction, controlled drop heights.

Administrative: loading/unloading procedures, exclusion zones, post-weather checks.

Elimination: prohibit loading in high winds without suppression.

PPE: respirators, gloves, safety glasses.

7.4 Workshops / Sheds (Airborne Contaminants)

Engineering: ventilation systems, local exhaust extraction, sealed chemical storage.

Administrative: housekeeping inspections, storage registers, spill response procedure.

Elimination: substitute hazardous materials with safer alternatives where practicable.

PPE: chemical respirators, gloves, protective eyewear.

7.5 Hot Work (Grinding, Welding, Cutting)

Engineering: extraction fans, welding bays, fume filters.

Administrative: hot work permits, supervisor monitoring, training in fume hazards.

Elimination: avoid unnecessary hot work; outsource high-risk jobs.

PPE: welding visor, FR clothing, respiratory protection.

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7.6 Extreme Weather / Dust Events

Engineering: weather monitoring equipment, windbreaks/barriers.

Administrative: TARP triggers for high wind/dust, communication via UHF.

Elimination: stop or reschedule dusty activities during extreme conditions.

PPE: respirators, eye protection, wet weather gear if applicable

8. OPERATIONAL PROCEDURES

8.1 Dust Suppression & Control

Scope: Applies to haul roads, crushing/screening areas, stockpiles, and material handling.

Steps:

1. Operate water carts to suppress dust on haul roads and traffic areas.
2. Apply water sprays/misters at crushers and conveyors.
3. Cover or wet down loads when transporting fine material.
4. Suspend dust-generating work during high winds or poor visibility.

Responsibilities: Operators (dust suppression), Supervisor (monitor compliance), Quarry Manager (resource allocation).

References: WHS (Mines) Reg 2022 Sch 1 Part 2 (8).

8.2 Dust Monitoring & Exposure Control

Scope: Applies to all work areas where airborne dust may be present.

Steps:

1. Conduct personal dust monitoring (e.g. respirable dust sampling) in line with site monitoring program.
2. Use fixed-point dust monitors in high-risk areas.
3. Compare results against occupational exposure limits (OELs).
4. Report exceedances to Quarry Manager and take corrective action.

Responsibilities: HSE Coordinator (monitoring program), Operators (wear PPE), Supervisor (report exceedances).

References: WHS (Mines) Reg 2022 Sch 1 Part 2 (8)(a).

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8.3 PPE Use & Respiratory Protection

Scope: Applies where engineering/administrative controls cannot reduce dust below OELs.

Steps:

1. Provide fitted P2/P3 respirators to workers in dusty environments.
2. Ensure workers are trained and fit-tested annually.
3. Maintain PPE register and replacement schedule.
4. Workers to wear PPE at all times when entering designated dust zones.

Responsibilities: Operators (wear PPE), Supervisors (enforce use), HSE Coordinator (fit-testing & training).

References: WHS (Mines) Reg 2022 Sch 1 Part 2 (8)(d).

8.4 Housekeeping & Contaminant Control

Scope: Applies to workshops, sheds, and all work areas.

Steps:

1. Avoid dry sweeping; use vacuum systems or water for dust removal.
2. Store chemicals, oils, and other airborne contaminant sources in sealed containers.
3. Keep work areas clean, minimise accumulation of dust/contaminants.
4. Inspect workshops weekly for housekeeping compliance.

Responsibilities: Operators (housekeeping), Supervisors (weekly checks), Quarry Manager (resources).

References: WHS (Mines) Reg 2022 Sch 1 Part 2 (8)(b).

8.5 Maintenance of Dust Controls

Scope: Applies to fixed and mobile dust suppression equipment.

Steps:

1. Inspect sprays, water carts, and fogging systems daily.
2. Record defects in maintenance log.
3. Repair or replace faulty systems promptly.
4. Review maintenance schedules quarterly.

Responsibilities: Operators (report defects), Maintenance Team (repairs), Supervisors (enforce).

References: WHS (Mines) Reg 2022 Sch 1 Part 2 (8)(c).

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8.6 Emergency Response to Dust Events

Scope: Applies to extreme dust events (high winds, plant malfunction, major spill).

Steps:

1. Stop work and issue **UHF all-call** if visibility or air quality is unsafe.
2. Evacuate to designated safe zones if necessary.
3. Activate ERP and notify Quarry Manager.
4. Review and adjust dust suppression before resuming operations.

Responsibilities: All workers (raise alarm), Supervisor (initiate ERP), Quarry Manager (notifications & review).

References: WHS (Mines) Reg 2022 Sch 1 Part 2 (8)(f).

9. MONITORING

- **Personal Monitoring:** High-risk roles per AS 2985
- **Static Monitoring:** Key site locations (processing plant, stockpiles, haul roads)
- **Weather Monitoring:** Wind speed and direction to assess dust risk
- **Health Surveillance:** Respiratory health checks for exposed workers

Records: Maintain monitoring logs, TARP activations, incident reports for regulatory compliance

10. COMMUNICATION & REPORTING

- Toolbox talks and site induction include dust hazards and controls
- Monitoring results displayed on site HSE noticeboard
- Exceedances reported immediately to supervisors and recorded in the incident register

11. REVIEW

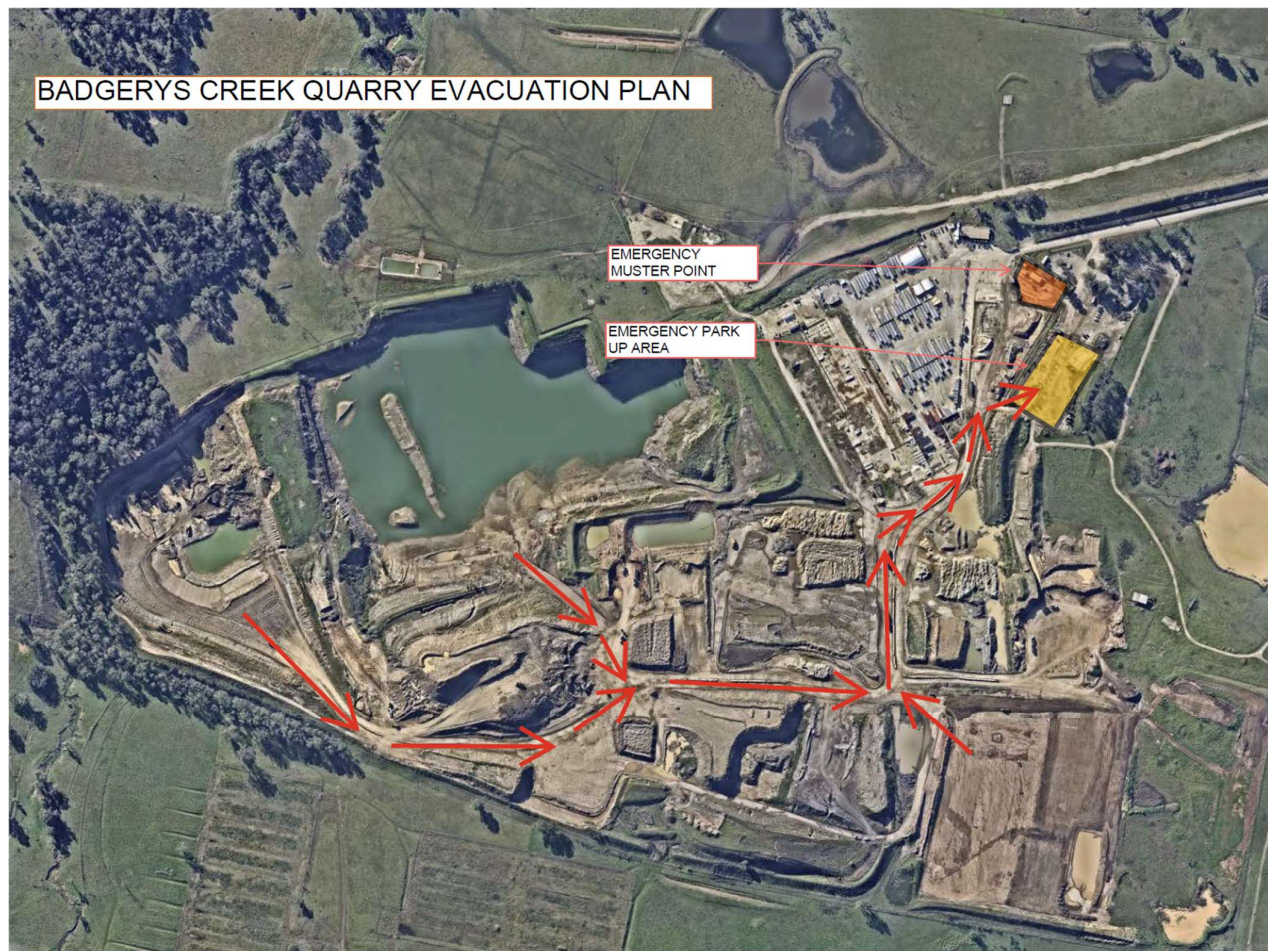
- PCP reviewed quarterly and after incidents/exceedances
- Updates include consultation with workers and HSRs
- Review effectiveness of controls, monitoring data, and TARP triggers
- Record and track corrective actions

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12. EMERGENCY RESPONSE

- Stop work if dust exceeds safe levels
- Evacuate personnel to safe upwind location
- Notify Site Supervisor
- Escalate to Quarry Manager and Mines Regulator if exposure exceeds WES
- Record event in hazard register

13. BADGERYS CREEK QUARRY EVACUATION PLAN



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EMERGENCY RESPONSE CONTACT DETAILS

Emergency Response Team Contacts:			
Chief Warden	Damon Sydir	Contact No.:	0428 791 977
Deputy Warden	Darrel Burwick	Contact No.:	0414 942 434
First Aid Officer:	Andrew Carpenter	Contact No.:	0422 097 940
First Aid Officer:	Anthony Kosicki	Contact No.:	0450 500 670
First Aid Officer:	Lachlan Willis	Contact No.:	0476 178 469
Fire Warden:	Mick Ford	Contact No.:	0401 192 621
Fire Warden:	Anthony Mitchel	Contact No.:	0403 290 075
Fire Warden:	Joe Bartlow	Contact No.:	0407 100 733
Quarry Manager	Blake Newell	Contact No.:	0407 794 068
WHS Manager	Shane Wilson	Contact No.:	0418 445 043
WHS Coordinator	Talia Miler	Contact No.:	0448 837 189
Monier Contact	Phil Tutton	Contact No.:	0433 249 340
Operations Manager:	Chris Miler	Contact No.:	0407 457 698
Transport Manager	Jason Yates	Contact No.:	0448 491 546
Workshop Manager	Warren Leahy	Contact No.:	0408 363 833
Emergency Contacts:			
Emergency Services	000 or 112		
MINE SAFETY DEPARTMENT	1300 814 609		
Environmental Protection Authority (EPA)	SYDNEY OFFICE: (02) 9995 5000 POLLUTION LINE: 131 555		

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14. PRINCIPAL HAZARD RISK MAT

Air Quality, Dust Contaminants							
WORK HEALTH AND SAFETY (MINES) REGULATION 2022 - SCHEDULE 1 - Part 2 Mines and petroleum sites 8 Air quality or dust or other airborne contaminant							
The following matters must be considered in developing the control measures to manage the risks of air quality or dust or other airborne contaminants:							
(a) the types of dust and other chemical and biological contaminants likely to be in the air from both natural sources, including naturally occurring asbestos, and introduced sources,	Yes	WHS-PL-07.050 Dust and Airborne Contaminants Management Plan, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE, site rules, Annual Dust Monitoring by Occupational Hygienist		3	D	17	
(b) the levels of oxygen, dust and other contaminants in the natural or supplied air of a mine,	Yes	WHS-PL-07.050 Dust and Airborne Contaminants Management Plan, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of Mobile Plant, Pre-start checks, Water Cart, PPE, site rules, Annual Dust Monitoring by Occupational Hygienist		3	D	17	
(c) the temperature and humidity of the air,	Yes	IMS-MSP-07.051 Working in a Cold Environment, IMS-MSP-07.052 Working in a Hot Environment, Onsite rules (SSMP), Appropriate clothing supplied for conditions, Available water onsite for drinking, WHS-MSP-09.007 Fatigue Management Plan, WHS-MSP-07.056 Fitness for Work		3	D	17	
(d) the length of exposure, having regard to extended shifts and reduced recovery periods.	Yes	WHS-MSP-09.007 Fatigue Management Plan, WHS-MSP-07.056 Fitness for Work, Onsite Rules (SSMP)		3	D	17	
Likelihood							
Consequence	A. Commonly Occurs	B. Has Occurred	C. Could Occur	D. Not Likely to Occur	E. Practically Impossible		
1. Catastrophic	1 - High	2 - High	4 - High	7 - Medium	11 - Medium		
2. Major	3 - High	5 - High	8 - Medium	12 - Medium	16 - Low		
3. Serious	6 - High	9 - Medium	13 - Medium	17 - Low	20 - Low		
4. Minor	10 - Medium	14 - Medium	18 - Low	21 - Low	23 - Low		
5. Nil impact, injury or damage	15 - Medium	19 - Low	22 - Low	24 - Low	25 - Low		
ONSITE HAZARDS	Identified Risk	Potential Airbourne Contaminant	Health Risks	Controls recommended	C	L	R
Mobile Crushing and Screening Operations	Yes	Respirable crystalline silica (RCS) and Inhalable Dust	Silicosis, COPD, Eye Irritation	Apply water to Crusher/ Screen area during operation, blending of wet materials, minimise drop heights, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE, Annual Dust Monitoring by Occupational Hygienist	3	D	17
Haul roads	Yes	RCS and Inhalable Dust	Silicosis, Respiratory Irritation	Road watering program; speed limits; enclosed cabs with filtration, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE, Annual Dust Monitoring by Occupational Hygienist	3	D	17
Stockpiles	Yes	RCS and Inhalable Dust	Silicosis, Respiratory Irritation	Apply water during loading/unloading; minimise drop heights; enforce speed limit in and around stockpiles, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE, Annual Dust Monitoring by Occupational Hygienist	3	D	17
Material Handling	Yes	RCS and Inhalable Dust	Silicosis, Respiratory Irritation	Apply water during loading/unloading; minimise drop heights; enforce speed limit, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE, Annual Dust Monitoring by Occupational Hygienist	3	D	17
Maintenance works - Welding, Grinding and Cutting	Yes	Welding Fumes, metal particulates and Silica Dust	Metal Fume Fever, Silicosis, Respiratory Disease, Eye Irritation	Local exhaust ventilation; wet cutting; cross-flow ventilation, PPE - P2/P3 respirator (task-appropriate), safety glasses/face shield	3	D	17
Mobile Plant Cabin Cleaning	Yes	Dust resuspension, RCS and Inhalable Dust	Silicosis, Respiratory Irritation	Industrial HEPA vacuum; no dry sweeping, HEPA filter maintenance schedule.	3	D	17
Site Shed Cleaning	Yes	Dust resuspension, RCS and Inhalable Dust	Silicosis, Respiratory Irritation	Industrial HEPA vacuum; no dry sweeping, HEPA filter maintenance schedule.	3	D	17
Hardstand areas	Yes	RCS and Inhalable Dust	Silicosis, Respiratory Irritation	Apply water to area regularly, enforce speed limit, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE	3	D	17
Diesel Equipment - eg. Mobile Pumps	Yes	Diesel Particulate Matter (DPM)	Respiratory Irritation, Lung Cancer	Maintain ventilation; limit idling; maintain diesel engines, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE - P2 respirator (DPM Rated) if required	3	D	17
Diesel Equipment - Light Vehicles	Yes	Diesel Particulate Matter (DPM)	Respiratory Irritation, Lung Cancer	Maintain ventilation; limit idling; maintain diesel engines, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE, Annual Dust Monitoring by Occupational Hygienist	3	D	17

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Cold Weather	Yes	Low ambient temperature and humidity	Cold Stress, Hypothermia, Frostbite	IMS-MSP-07.051 Working in a Cold Environment Onsite rules (SSMP), Appropriate clothing supplied for conditions, Available water onsite for drinking, WHS-MSP-09.007 Fatigue Management Plan, WHS-MSP-07.056 Fitness for Work	3	D	17
Hot Weather	Yes	High ambient temperature and humidity	Heat Stress, Dehydration, Heat Exhaustion, Heat Stroke	IMS-MSP-07.052 Working in a Hot Environment Onsite rules (SSMP), Appropriate clothing supplied for conditions, Available water onsite for drinking, WHS-MSP-09.007 Fatigue Management Plan, WHS-MSP-07.056 Fitness for Work	3	D	17
Dozer Ripping	Yes	RCS and Inhalable Dust	Silicosis, Respiratory Irritation	Apply water to area regularly, enforce speed limit, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE	3	D	17
Pozi track - Sweeping Concrete driveway	Yes	RCS and Inhalable Dust	Silicosis, Respiratory Irritation	Apply water to area regularly, enforce speed limit, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE	3	D	17
Labour Works	Yes	Dust resuspension, RCS and Inhalable Dust	Silicosis, COPD, Eye Irritation	IMS-MSP-07.051 Working in a Cold Environment, IMS-MSP-07.052 Working in a Hot Environment, Onsite rules (SSMP), Appropriate clothing supplied for conditions, Available water onsite for drinking, WHS-MSP-09.007 Fatigue Management Plan, WHS-MSP-07.056 Fitness for Work	3	D	17
Maintenance on breakdowns	Yes	Dust resuspension, RCS and Inhalable Dust	Silicosis, COPD, Eye Irritation	Apply water to area regularly, enforce speed limit, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE	3	D	17
Hammering Rock	Yes	RCS and Inhalable Dust	Silicosis, Respiratory Irritation	Apply water to area regularly, enforce speed limit, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE	3	D	17
Scrapping Walls & Floors in Pit	Yes	RCS and Inhalable Dust	Silicosis, Respiratory Irritation	Apply water to area regularly, enforce speed limit, Monthly monitoring on Static dust gauges, Scheduled service and maintenance of mobile Plant, Pre-start checks, Water Cart, PPE	3	D	17

APPENDIX 6: Dust & Airborne PHMP

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PRINCIPAL HAZARD MANAGEMENT PLAN DUST & AIRBOURNE CONTAMINANTS BADGERYS CREEK QUARRY



DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	20/08/2024	Review and Updates following Risk assessment reviews	SW
2.	13/08/2025	Review and Updates following Risk assessment reviews	BN

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1. PURPOSE

This PHMP identifies the principal hazards associated with dust and airborne contaminants at Badgerys Creek Quarry and outlines overarching strategies to manage associated risks.

It supports the implementation of detailed control measures provided in the **Principal Control Plan (PCP)** for Dust & Airborne Contaminants.

2. SCOPE

Applies to all workers, contractors, and visitors exposed to dust and airborne contaminants generated from:

- Quarry and rehabilitation operations
- Crushing and screening plants
- Material handling and haul roads
- Drilling and blasting
- Stockpiles
- Maintenance areas

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3. REFERENCES

3.1 Legislation

- Work Health and Safety Act 2011
- Work Health and Safety Regulation 2017
- Work Health and Safety (Mines and Petroleum sites) Regulation 2022

3.2 Codes of Practice

- Safe Work Australia Workplace Exposure Standards for Airborne Contaminants 2022
- Safe Work Australia Welding Processes 2020
- SafeWork NSW Code of practice – Managing the Risks of Plant in the Workplace 2022

3.3 Australian Standards

- AS 3640-2009 Workplace atmospheres - Method for sampling and gravimetric determination of inhalable dust
- AS 2985-2009 Workplace atmospheres - Method for sampling and gravimetric determination of respirable dust

4. PRINCIPAL HAZARDS

Dust and airborne contaminants present at this site include:

- Respirable crystalline silica (RCS)
- Inhalable dust from overburden, clay, or other materials
- Diesel particulate matter (DPM)
- Welding fumes, smoke from burning, and blasting gases

5. RISK ASSESSMENT SUMMARY

Hazard	Likelihood (without controls)	Potential Consequence	Risk Rating
Dust & Airborne Contaminants	High	Silicosis, COPD, lung cancer, acute respiratory distress	High

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6. HIGH-LEVEL CONTROL OVERVIEW

- **Elimination / Substitution:** Avoid dry sweeping, Restrict Access to Dust-Generating Areas (see PCP for operational details)
- **Engineering:** Water suppression, enclosed cabins, HEPA filtration (see PCP)
- **Administrative:** Speed limits, task scheduling, housekeeping (see PCP)
- **PPE:** P2/P3 respirators, eye protection, face shields (see PCP)

Note: Detailed operational procedures, monitoring, and TARP levels are documented in the PCP.

7. EMERGENCY RESPONSE

- Stop work if hazardous dust levels exceed safe limits
- Evacuate personnel to a safe upwind location
- Notify Site Supervisor and record the event
- For exposures above Workplace Exposure Standards (WES), notify the **Mines Regulator**
- Detailed TARP actions and emergency contact list are documented in the PCP

8. CROSS-REFERENCE TO PCP

For detailed operational controls, TARP, monitoring, and roles/responsibilities, refer to:
Principal Control Plan – Dust & Airborne Contaminants, Badgerys Creek Quarry

9. REVIEW & CONTINUOUS IMPROVEMENT

- PHMP reviewed **annually** or after incidents/exceedances
- Worker and HSR consultation incorporated in all reviews
- Updates to PHMP informed by monitoring results, operational changes, and corrective actions

APPENDIX 7: Fire & Explosion PCP

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PRINCIPAL CONTROL PLAN



FIRE & EXPLOSION BADGERYS CREEK QUARRY

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1. TRIGGER ACTION RESPONSE PLAN (TARP)

Trigger Level	Example Indicators	Actions
Level 1 – Normal	No visible hazards all systems operational. Fuel storage compliant and bunds intact. Fire extinguishers in date and serviceable.	Continue operations; Daily pre-start checks (plant, fuel systems, extinguishers). Record inspections in log.
Level 2 – Caution	Hot work, fuel spills, high fire danger weather	Apply hot work permits, deploy fire watch, increase inspections
Level 3 – Emergency	Fire outbreak, explosion, uncontrolled ignition source	Evacuate affected areas, stop work, activate Emergency Response Plan

2. DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	08/09/2025	Review and Updates following Risk assessment reviews	BN

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3. PURPOSE

This Principal Control Plan (PCP) provides detailed operational controls, procedures, and responsibilities for managing Fire & Explosion at Badgerys Creek Quarry.

It supports the **PHMP – Fire and Explosion**, which identifies the hazard, risk assessment, and overarching management strategies.

4. SCOPE

Applies to all workers, contractors, and visitors potentially exposed to fire or explosion hazards from:

- Fuels, lubricants, and chemicals
- Mobile plant and vehicles
- Hot works (welding, cutting, grinding)

Natural events (bushfires, lightning)

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5. REFERENCES

- **PHMP – Fire and Explosion** (Badgerys Creek Quarry)
- WHS Act 2011
- WHS Regulation 2017
- Work Health and Safety (Mines and Petroleum sites) Regulation 2022
- NSW Explosives Act 2003
- NSW Code of Practice – Hazardous Chemicals (2019)
- Welding Processes (2019)
- Electrical Risks (2019)

6. ROLES & RESPONSIBILITY – MULGOA QUARRIES PTY LTD

6.1 Directors & General Manager

- Provide strategic leadership and demonstrate commitment to managing dust and airborne contaminants.
- Ensure adequate funding, staffing, and equipment are provided to implement this PCP effectively.
- Approve the PCP and any significant updates following reviews.
- Receive and review high-level monitoring reports, incident summaries, and audit outcomes.
- Ensure the organisation complies with all relevant legislation and regulatory requirements.
- Hold the Quarry Manager accountable for the implementation and performance of the plan.

6.2 Quarry Manager

- Ensure the PCP is implemented and integrated into daily operations.
- Oversee hazardous storage.
- Oversee hot work controls.

6.3 Site Supervisor

- Conduct regular inspections of work areas.
- Enforce controls.
- Enforce access restrictions.
- Initiate Trigger Action Response Plan (TARP) measures immediately when trigger levels are reached.

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6.4 WHS Manager & WHS Coordinators

- Maintain fire/explosion records, audits, emergency drills.

6.5 Operators, Contractors & Visitors

- Follow fire prevention procedures, report hazards, use PPE
- Immediately report any visible hazards to a supervisor.

7. CONTROL MEASURES

7.1 Grass Fires

Elimination / Substitution: Reduce combustible vegetation near operations.

Engineering Controls: Firebreaks; water carts/trailers on site.

Administrative Controls: Vegetation management plan; seasonal inspections; weather/fire danger monitoring.

Personal Protective Equipment (PPE): Hi-vis FR gear for response team.

7.2 Bushfires (external)

Elimination / Substitution: Cease operations on Catastrophic/Extreme fire danger days.

Engineering Controls: Boundary firebreaks; cleared buffer zones.

Administrative Controls: Liaison with RFS; ERP bushfire procedure; evacuation drills.

Personal Protective Equipment (PPE): Respiratory protection for smoke, hi-vis clothing during evacuation.

7.3 ANL Facility (mulch fires)

Elimination / Substitution: Restrict operations downwind during active mulch fire events.

Engineering Controls: Exclusion zones from fire-affected area.

Administrative Controls: Liaison with ANL and RFS; emergency coordination protocol.

Personal Protective Equipment (PPE): Respiratory protection; helmets, hi-vis.

7.4 Monier (overhead power/lighting)

Elimination / Substitution: Prohibit plant travel under power lines outside designed crossings.

Engineering Controls: Line markers; pole/tower inspections.

Administrative Controls: Exclusion zones; electrical fault reporting system.

Personal Protective Equipment (PPE): Insulated gloves for authorised maintenance staff.

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7.5 Diesel Pumps

Elimination / Substitution: No hot work within exclusion zone.

Engineering Controls: Bunding; spill containment; dedicated refuelling pad.

Administrative Controls: SWMS for refuelling; spill response drills.

Personal Protective Equipment (PPE): Gloves, goggles, FR clothing during refuelling.

7.6 Petrol Pumps

Elimination / Substitution: Prohibit non-essential access during refuelling.

Engineering Controls: AS1940-compliant tanks; separation from ignition sources.

Administrative Controls: SWMS for refuelling; spill response drills trained operators.

Personal Protective Equipment (PPE): Antistatic clothing, gloves, eye protection during refuelling.

7.7 Electrical Pumps

Elimination / Substitution: De-energise before maintenance.

Engineering Controls: IP-rated enclosures; RCDs; isolation switches.

Administrative Controls: Test & tag program; lockout/tagout procedure.

Personal Protective Equipment (PPE): Arc-rated PPE for electricians.

7.8 Site Kitchen

Elimination / Substitution: Remove flammables from kitchen area.

Engineering Controls: Extinguishers and fire blankets installed.

Administrative Controls: Test & tag appliances; staff training in extinguisher use.

Personal Protective Equipment (PPE): Fire wardens trained and equipped.

7.9 Site Sheds

Elimination / Substitution: Minimise combustible load in sheds.

Engineering Controls: Extinguishers and smoke detectors installed.

Administrative Controls: Housekeeping policy; segregation of flammables.

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7.10 Oil Sheds

Elimination / Substitution: No non-essential storage in oil sheds.

Engineering Controls: Bunding and secondary containment; locked access..

Administrative Controls: Compliance with AS1940; weekly inspections.

Personal Protective Equipment (PPE): FR gloves, goggles when handling oils.

7.11 Refuelling Truck

Elimination / Substitution: Refuel only in designated areas.

Engineering Controls: Drip trays; mounted extinguisher; lockable fittings.

Administrative Controls: Driver training; SWMS for mobile refuelling.

Personal Protective Equipment (PPE): Gloves, goggles, FR clothing during refuelling.

7.12 Refuelling Tank in Vehicle

Elimination / Substitution: No hot works near vehicle with tank.

Engineering Controls: Secure, vented tanks; spill kits onboard.

Administrative Controls: SWMS for refuelling; spill response drills.

Personal Protective Equipment (PPE): Gloves, goggles, FR clothing during refuelling.

7.13 Light Vehicles

Elimination / Substitution: No refuelling outside designated areas.

Administrative Controls: speed limits; traffic management plan.

Personal Protective Equipment (PPE): Hi-vis, Flashing Light, safety flag, head lights, UHF comms.

7.14 Mobile Plant

Elimination / Substitution: Remove flammable debris buildup on machines.

Engineering Controls: Onboard fire suppression/extinguishers; emergency stop systems.

Administrative Controls: Daily pre-start fire checks; segregation routes.

Personal Protective Equipment (PPE): Hi-vis, Flashing Light, Working lights, UHF comms.

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7.15 *Screens & Crushers*

Elimination / Substitution: Prohibit unauthorised access.

Engineering Controls: Guarding; fire extinguishers; dust suppression.

Administrative Controls: Hot work permit system; regular cleaning of combustible buildup.

Personal Protective Equipment (PPE): Welding visors, gloves, FR gear during maintenance.

7.16 *Lightning Strikes*

Elimination / Substitution: Clear workforce from exposed areas in storm events.

Engineering Controls: Lightning protection systems on fixed infrastructure.

Administrative Controls: Stop-work protocol during storms; weather monitoring.

Personal Protective Equipment (PPE): Standard PPE for evacuation.

7.17 *Gas Main*

Elimination / Substitution: No excavation/works near pipeline.

Engineering Controls: Protective barriers; isolation valves.

Administrative Controls: Exclusion zones; ERP integration; liaison with gas utility.

Personal Protective Equipment (PPE): emergency responders equipped with FR clothing, helmets.

7.18 *Smokers*

Elimination / Substitution: Prohibit smoking outside designated zone.

Engineering Controls: Fire-safe butt bins in designated smoking area.

Administrative Controls: designated smoking area.

7.19 *Maintenance Works – Grinding/Hot Work*

Elimination / Substitution: Ban hot work during extreme fire danger days.

Engineering Controls: Fire extinguishers/fire blankets at hot work area.

Administrative Controls: Hot work permits; fire watch during and post work.

Personal Protective Equipment (PPE): Welding visors, FR gloves, goggles, long-sleeve FR clothing.

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8. OPERATIONAL PROCEDURES

8.1 Fuel Storage & Handling

- **Scope:** Applies to all diesel, petrol, oils, and combustible liquid storage/dispensing areas.
- **Steps:**
 1. Store fuels in **AS1940-compliant bunded tanks** with spill containment.
 2. Conduct **daily operator checks** for leaks, bund integrity, and placards.
 3. Only trained and authorised personnel to refuel or decant fuels.
 4. Spill kits and extinguishers must be accessible within 10 m of fuel points.
- **Responsibilities:** Operators (daily checks), Supervisor (weekly inspection), Quarry Manager (resources & compliance).
- **References:** WHS (Mines) Reg 2022 Sch 1 (a), (e).

8.2 Refuelling Operations (Fixed & Mobile)

- **Scope:** Applies to fixed pumps, mobile fuel carts, and refuelling tanks in vehicles.
- **Steps:**
 1. Conduct pre-start on refuelling unit, check hoses, valves, extinguishers.
 2. Position vehicles on stable ground in designated refuelling areas.
 3. Prohibit ignition sources within 5 m of refuelling activity.
 4. Deploy drip trays during refuelling and clean spills immediately.
 5. Complete refuelling SWMS checklist.
- **Responsibilities:** Trained drivers/operators (execution), Supervisor (monitoring), Quarry Manager (oversight).
- **References:** WHS (Mines) Reg 2022 Sch 1 (a), (e).

8.3 Hot Work Activities

- **Scope:** Applies to grinding, welding, cutting, and maintenance activities.
- **Steps:**
 1. Apply for and issue **Hot Work Permit** before starting.
 2. Ensure fire extinguisher and fire watch are present at work area.
 3. Establish exclusion zone and clear combustibles within 5 m radius.
 4. Supervisor to check area 30 min post-completion for hot spots.
- **Responsibilities:** Operator (permit compliance), Supervisor (authorisation & verification), Quarry Manager (policy enforcement).
- **References:** WHS (Mines) Reg 2022 Sch 1 (b), (2).

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8.4 Electrical Safety

- **Scope:** Applies to pumps, wires, lighting towers, and site electrical installations.
- **Steps:**
 1. All electrical plant to undergo **test & tag** every 6 months.
 2. Inspect overhead lines and towers weekly, mark clearance zones.
 3. Lockout/Tagout (LOTO) must be applied before maintenance.
 4. Report damaged cables, plugs, or equipment immediately.
- **Responsibilities:** Operators (reporting), Electricians (maintenance), Supervisor (enforcement).
- **References:** WHS (Mines) Reg 2022 Sch 1 (b), (h).

8.5 Fire Prevention & Housekeeping

- **Scope:** Applies to all site areas (kitchen, sheds, workshops, mobile plant).
- **Steps:**
 1. Keep storage sheds clean, flammables segregated, and rubbish removed.
 2. Fit extinguishers to all vehicles, plant, and fixed facilities.
 3. Firebreaks and cleared vegetation zones to be maintained around site boundaries.
 4. Conduct pre-summer fire readiness checklist annually.
- **Responsibilities:** Operators (daily housekeeping), Supervisors (weekly checks), Quarry Manager (resources).
- **References:** WHS (Mines) Reg 2022 Sch 1 (f).

8.6 Emergency Fire Response

- **Scope:** Applies to all fire events including grass/bushfires, plant fires, fuel fires.
- **Steps:**
 1. On discovery: raise **UHF all-call** and notify Supervisor.
 2. Attempt first attack with extinguisher or water cart **only if safe**.
 3. If uncontrolled: activate ERP → evacuate to muster points, call 000/RFS.
 4. Supervisor to account for all personnel and secure exclusion zones.
 5. Quarry Manager to notify Regulator if required and complete incident report.
- **Responsibilities:** All workers (raise alarm), Supervisor (initial control & evacuation), Quarry Manager (external notifications & ERP).
- **References:** WHS (Mines) Reg 2022 Sch 1 (g).

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8.7 Smoking Controls

- **Scope:** Applies to all smoking areas and behaviours on site.
- **Steps:**
 1. Smoking only permitted in **designated fire-safe areas**.
 2. Butt bins provided and emptied daily.
 3. Strict prohibition signage displayed site-wide.
 4. Breaches result in disciplinary action.
- **Responsibilities:** All personnel (compliance), Supervisors (enforcement).
- **References:** WHS (Mines) Reg 2022 Sch 1 (b).

9. MONITORING

6-Monthly

- External service of extinguishers to AS1851.
- Review ERP drills (fire/bushfire).
- Audit of electrical test/tag register.

Annual

- Full review of Fire & Explosion PHMP/PCP.
- Liaison with RFS on bushfire readiness.
- Fire danger preparedness inspection before summer.

Records: Maintain monitoring logs, TARP activations, incident reports for regulatory compliance

10. COMMUNICATION & REPORTING

- Toolbox talks on fire hazards.
- Training on extinguisher use.
- Emergency drills recorded and reported.

11. REVIEW

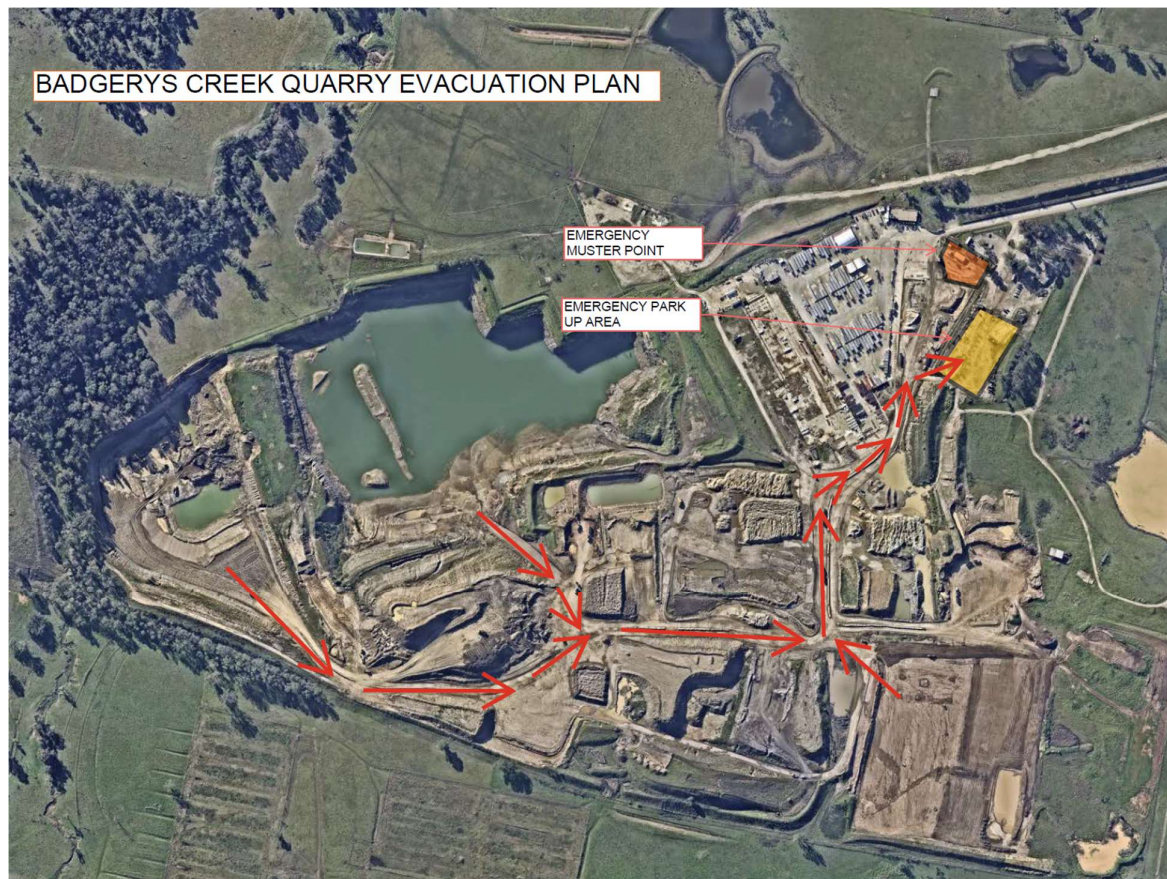
- PCP reviewed quarterly and after fire/explosion incident.
- Worker consultation included.

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12. EMERGENCY RESPONSE

- Stop work immediately.
- Evacuate to designated muster points.
- Notify Site Supervisor
- Notify Quarry Manager, WHS team, and Mines Regulator if incident occurs.
- Record incident in hazard register

13. BADGERYS CREEK QUARRY EVACUATION PLAN



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EMERGENCY RESPONSE CONTACT DETAILS

Emergency Response Team Contacts:			
Chief Warden	Damon Sydir	Contact No.:	0428 791 977
Deputy Warden	Darrel Burwick	Contact No.:	0414 942 434
First Aid Officer:	Andrew Carpenter	Contact No.:	0422 097 940
First Aid Officer:	Anthony Kosicki	Contact No.:	0450 500 670
First Aid Officer:	Lachlan Willis	Contact No.:	0476 178 469
Fire Warden:	Mick Ford	Contact No.:	0401 192 621
Fire Warden:	Anthony Mitchel	Contact No.:	0403 290 075
Fire Warden:	Joe Bartlow	Contact No.:	0407 100 733
Quarry Manager	Blake Newell	Contact No.:	0407 794 068
WHS Manager	Shane Wilson	Contact No.:	0418 445 043
WHS Coordinator	Talia Miler	Contact No.:	0448 837 189
Monier Contact	Phil Tutton	Contact No.:	0433 249 340
Operations Manager:	Chris Miler	Contact No.:	0407 457 698
Transport Manager	Jason Yates	Contact No.:	0448 491 546
Workshop Manager	Warren Leahy	Contact No.:	0408 363 833
Emergency Contacts:			
Emergency Services	000 or 112		
MINE SAFETY DEPARTMENT	1300 814 609		
Environmental Protection Authority (EPA)	SYDNEY OFFICE: (02) 9995 5000 POLLUTION LINE: 131 555		

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14. PRINCIPAL HAZARD RISK MATRIX

Fire or Explosion						
WORK HEALTH AND SAFETY (MINES) REGULATION 2022 - SCHEDULE 1 - Part 2 Mines and petroleum sites 9 Fire or explosion						
The following matters must be considered in developing the control measures to manage the risks of fire or explosion:	Identified Risk	Consequence	Likelihood	Risk Score	Risk Rating	Controls recommended
(a) the potential sources of flammable, combustible and explosive substances and materials, both natural and introduced, including gas, dust, oils, fluids, solvents and timber.	Yes	2. Major	C. Could Occur	8	Medium	Appropriate storage for Diesel Oil and other liquids in accordance with NE 54C 2001 Risk assessment in accordance with the Australian Mining Safety
(b) the potential sources of ignition, fire or explosion, including plant, electricity, static electricity, spontaneous combustion, lightning, light metal alloys, hot work and other work practices,	Yes	3. Serious	C. Could Occur	10	Medium	Hot work permits with fire watch, IP rated enclosures and regular servicing of plant. Electrical testing/tagging and IP rated enclosures. Lightning protection on a stop work trigger during storms. No combustible storage, isolation and coordination with local fire services (TFS).
(c) the potential for propagation of fire or explosion to other parts of the mine,	Yes	1. Catastrophic	C. Could Occur	4	High	Maintain firebreaks around storage areas. House hold fuel (petrolum) stored in a safe, away from the mine site.
(d) the potential sources of flammable material with a flash point of less than 61° Celsius, including material on the top of any shaft or outlet at the mine.	Yes	2. Major	C. Could Occur	8	Medium	Have written and implemented a policy for the management of flammable liquids and gases.
(e) arrangements for the management and control of the transport and storage of combustible liquids.	Yes	3. Serious	D. Not Likely to Occur	17	Low	Appropriate storage for "fuel" and use of sealed tanks with appropriate safety features, emergency response code (ECR) and appropriate fire safety measures. Flammable liquids stored in a safe, away from the mine site.
(f) arrangements for the prevention of fire, including the type and location of systems for the early detection and suppression of fires,	Yes	3. Serious	C. Could Occur	10	Medium	Fire extinguishers located at vehicles, plant and facilities. Water containers and site for suppression. Substantive inspection and maintenance of equipment. Plant has service in the mine site during the day.
(g) the equipment for fighting fire at the mine,	Yes	3. Serious	D. Not Likely to Occur	17	Low	Extinguishers located at the mine, including fire extinguishers and tanks maintained and ready for use. Fire fighting equipment and training. Fire fighting equipment and training.
(h) in the case of an underground mine the arrangements for the management and control of volatile or hazardous materials.	Yes	3. Serious	D. Not Likely to Occur	17	Low	Extinguishers located at the mine, including fire extinguishers and tanks maintained and ready for use. Fire fighting equipment and training. Fire fighting equipment and training.
(i) A principal mining hazard management plan that addresses fire or explosion is to include details of any procedures to be used for carrying out hot work at the mine.	Yes	3. Serious	D. Not Likely to Occur	17	Low	Extinguishers located at the mine, including fire extinguishers and tanks maintained and ready for use. Fire fighting equipment and training. Fire fighting equipment and training.

ONSITE HAZARDS IDENTIFIED						
Consequence	Likelihood					
	A. Commonly Occurs	B. Has Occurred	C. Could Occur	D. Not Likely to Occur	E. Practically Impossible	
1. Catastrophic	1 - High	2 - High	3 - High	4 - High	5 - High	
2. Major	6 - High	7 - High	8 - High	9 - High	10 - High	
3. Serious	11 - High	12 - High	13 - High	14 - High	15 - High	
4. Minor	16 - High	17 - High	18 - High	19 - High	20 - High	
5. Nil impact, injury or damage	21 - High	22 - High	23 - High	24 - High	25 - High	

ONSITE HAZARDS	Identified Risk	Short Rationale	Consequence	Likelihood	Risk Score	Risk Rating	Primary Controls recommended
Grass Fires	Yes	Likely to start locally from dry grass	2. Major	C. Could Occur	8	Medium	Control vegetation, maintain firebreaks and water trucks.
Bush fires	Yes	External bushfire can cause catastrophic site impact	1. Catastrophic	C. Could Occur	4	High	Liaise with fire services, evacuations.
ANL facility	Yes	Mulch constantly on fire	2. Major	B. Has Occurred	5	High	Liaise with fire services, evacuations.
Monier	Yes	Overhead power lines and lighting towers	3. Serious	C. Could Occur	13	Medium	Inspections and exclusion zones.
Deisel Pump	Yes	Fuel-related ignition risk	3. Serious	B. Has Occurred	9	Medium	Bunding, spill kits, hot-work controls, refuelling SWMS.
Petrol Pumps	Yes	High-energy fuel source	2. Major	C. Could Occur	8	Medium	Refuelling procedures and trained operators.
Electrical Pumps	Yes	Electrical ignition source	3. Serious	B. Has Occurred	9	Medium	Testing/tagging, IP-rated enclosures, isolation procedures.
Electrical wires	Yes	Risk of electrical fires & arcing	3. Serious	B. Has Occurred	9	Medium	Overhead line markers, exclusion zones, testing & maintenance.
Site Kitchen	Yes	Small-scale cooking fire risk	4. Minor	B. Has Occurred	14	Medium	Fire extinguishers, SOPs, staff training, electrical safety.
Site Sheds	Yes	Storage and ignition risk	3. Serious	C. Could Occur	13	Medium	Housekeeping, segregation of flammables, extinguisher access.
Oil Sheds	Yes	Bulk combustible storage	2. Major	B. Has Occurred	5	High	Bunding, secondary containment, strict access, fire extinguishers.
Refuelling Truck	Yes	Mobile refuelling risks	2. Major	C. Could Occur	8	Medium	Trained drivers, drip trays, designated refuelling area, exclusion.
Refuelling Tank in Use	Yes	Portable tanks on vehicles	2. Major	C. Could Occur	8	Medium	Secure storage, no hot works, inspections.
Light vehicle	Yes	On-site collisions and fuel spill potential	3. Serious	C. Could Occur	13	Medium	Speed limits, separation, induction & licencing.
Mobile Plant	Yes	Mobile plant interactions are frequent and can be severe	2. Major	A. Commonly Occurs	3	High	Traffic management, segregation, controls.
Screen And Crushers	Yes	Hot surfaces, dust, mechanical sparks	3. Serious	C. Could Occur	13	Medium	Hot-work controls, guarding, housekeeping.
Lightening strikes	Yes	Natural event but low likelihood	2. Major	D. Not Likely	12	Medium	Lightning protection, stop-work triggers during storms.
gas main	Yes	Gas main failure explosion risk treat as critical	1. Catastrophic	C. Could Occur	4	High	Pipeline protection, exclusion, emergency isolation.
Smokers	Yes	Ignition source present	3. Serious	B. Has Occurred	9	Medium	Strict no-smoking areas, signage, enforcement and disciplinary procedure.
Maintenance Works - Grinding	Yes	Hot work sparks ignition	3. Serious	B. Has Occurred	9	Medium	Hot work permit, fire watch, hot-work procedures and permits.

APPENDIX 8: Fire & Explosion PHMP

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PRINCIPAL HAZARD MANAGEMENT PLAN **FIRE & EXPLOSION** **BADGERYS CREEK QUARRY**



DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	20/08/2024	Review and Updates following Risk assessment reviews	SW
2.	13/08/2025	Review and Updates following Risk assessment reviews	BN

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6. <i>HIGH-LEVEL CONTROL OVERVIEW</i>	3
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9. <i>REVIEW & CONTINUOUS IMPROVEMENT</i>	4

1. PURPOSE

This PHMP identifies the principal hazards associated with fire and explosion at Badgerys Creek Quarry and outlines overarching strategies to manage associated risks.

It supports the implementation of detailed control measures provided in the **Principal Control Plan (PCP)** for Fire & Explosion.

2. SCOPE

Applies to all workers, contractors, and visitors potentially exposed to fire or explosion hazards from:

- Fuels, lubricants and chemicals
- Mobile plant and vehicles
- Hot works (welding, cutting, grinding)
- Natural events (bushfires, lightning)

3. REFERENCES

3.1 Legislation

- WHS Act 2011; WHS Regulation 2017; WHS (Mines and Petroleum Sites) Regulation 2022

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3.2 Codes of Practice

- NSW Code of Practice – Hazardous Chemicals (2019), Welding Processes (2019), Electrical Risks (2019)

4. PRINCIPAL HAZARDS

- Fire from fuel, chemicals, or vegetation
- Explosion from gases, pressure vessels, or hot works
- Bushfire or lightning strike

5. RISK ASSESSMENT SUMMARY

Hazard	Likelihood (without controls)	Potential Consequence	Risk Rating
Fire or explosion	Medium	Fatality, serious injury, plant damage, property loss	High

6. HIGH-LEVEL CONTROL OVERVIEW

- **Elimination/Substitution:** No confined space hot works, reduce flammable storage
- **Engineering:** Fire extinguishers, spill bunds, lightning protection
- **Administrative:** Hot work permits, hazardous chemicals register, SDS compliance
- **PPE: Flame-resistant clothing, gloves, eye protection**

Note: Detailed operational procedures, monitoring, and TARP levels are documented in the PCP.

7. EMERGENCY RESPONSE

- Stop work immediately
- Evacuate to safe location
- Notify Site Supervisor
- Activate Emergency Response Plan (ERP)

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8. CROSS-REFERENCE TO PCP

For detailed operational controls, TARP, monitoring, and roles/responsibilities, refer to:
Principal Control Plan – Fire & Explosion, Badgerys Creek Quarry

9. REVIEW & CONTINUOUS IMPROVEMENT

- PHMP reviewed **annually** or after fire/explosion incident
- Worker consultation included
- Updates to PHMP informed by audits, Inspections and regulator feedback

APPENDIX 9: Ground Strata PCP

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PRINCIPAL CONTROL PLAN



GROUND STRATA BADGERYS CREEK QUARRY

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1. TRIGGER ACTION RESPONSE PLAN (TARP)

Trigger Level	Example Indicators	Actions
Level 1 – Normal	No visible instability	Continue operations; maintain standard controls; monitor conditions.
Level 2 – Caution	Cracks, minor rockfalls, heavy rainfall event	Restrict access, increase inspections, scale walls if required
Level 3 – Exceedance	Major wall cracks, significant rockfall, unsafe stockpile	Evacuate exclusion zone, stop work, notify Quarry Manager

2. DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	08/09/2025	Review and Updates following Risk assessment reviews	BN

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3. PURPOSE

This Principal Control Plan (PCP) provides detailed operational controls, procedures, and responsibilities for managing ground strata at Badgerys Creek Quarry.

It supports the **PHMP – Ground Strata**, which identifies the hazard, risk assessment, and overarching management strategies.

4. SCOPE

Applies to all workers, contractors, and visitors exposed to ground stability hazards generated from:

- Quarry excavations
- Stockpiles and Dumps
- Rehabilitation works

5. REFERENCES

- **PHMP – Ground Strata** (Badgerys Creek Quarry)
- Work Health and Safety (Mines and Petroleum sites) Regulation 2022
- NSW Code of Practice – Inundation and Inrush Hazard Management (2015)
- AS 1726 Geotechnical Site Investigations

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6. ROLES & RESPONSIBILITY – MULGOA QUARRIES PTY LTD

6.1 Directors & General Manager

- Provide strategic leadership and demonstrate commitment to managing dust and airborne contaminants.
- Ensure adequate funding, staffing, and equipment are provided to implement this PCP effectively.
- Approve the PCP and any significant updates following reviews.
- Receive and review high-level monitoring reports, incident summaries, and audit outcomes.
- Ensure the organisation complies with all relevant legislation and regulatory requirements.
- Hold the Quarry Manager accountable for the implementation and performance of the plan.

6.2 Quarry Manager

- Ensure the PCP is implemented and integrated into daily operations.
- Allocate adequate resources
- Oversee geotechnical and supervisor monitoring
- Lead post-incident reviews and ensure corrective actions are completed.

6.3 Site Supervisor

- Conduct regular inspections of work areas for dust hazards.
- Enforce exclusion zones.
- Initiate Trigger Action Response Plan (TARP) measures immediately when trigger levels are reached.
- Provide toolbox talks and reinforce safe work procedures.

6.4 WHS Manager & WHS Coordinators

- Conduct audits.
- Maintain all records of monitoring, inspections, and TARP activations.
- Advise on geotechnical issues

6.5 Operators, Contractors & Visitors

- Follow all ground strata procedures and safe work instructions.
- Participate in training on ground strata hazards, health risks, and control measures.
- Immediately report any visible hazards to a supervisor.
- Stop work if safe conditions cannot be maintained and notify the supervisor.
- Comply with exclusion zones.

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7. CONTROL MEASURES

7.1 Stockpiles

Elimination / Substitution: Prohibit tipping/working near unstable edges, restrict access if cracks/slumping observed.

Engineering Controls: Benching and angle-of-repose controls; ramps designed to spec; drainage at base.

Administrative Controls: Loading procedure, degrubbing before tipping, daily operator inspections and post-rain inspections.

Personal Protective Equipment (PPE): high-vis & seatbelts.

7.2 Uncontrolled Fill Areas

Elimination / Substitution: No heavy plant access until compaction verified; prohibit use of unverified fills.

Engineering Controls: Layered placement and compaction; drainage to avoid saturation.

Administrative Controls: Fill placement procedure; geotechnical sign-off; exclusion zone signage.

Personal Protective Equipment (PPE): Standard site PPE (high-vis & steel cap boots)

7.3 Bundwalls

Elimination / Substitution: Isolate and close bund if defects found until repaired.

Engineering Controls: Designed to engineered standards; wheel-height berms; freeboard maintained; spillways installed.

Administrative Controls: Regular stability inspections; maintenance program for erosion repair; inspection after rain events.

Personal Protective Equipment (PPE): Standard site PPE (high-vis & steel cap boots).

7.4 Slopes / Benches / Pit Walls

Elimination / Substitution: Stop work near faces showing instability; rehabilitate worked-out faces.

Engineering Controls: Bench and batter design per geotech spec; drainage to prevent water buildup.

Administrative Controls: Daily face inspections; TARP triggers for cracks/slumping/seepage; exclusion zones.

Personal Protective Equipment (PPE): Hard hats, high-vis, seatbelts in vehicles near pit walls.

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7.5 Scaling (Loose Material Removal)

Elimination / Substitution: No manual scaling under unsupported ground.

Engineering Controls: Plant used where practicable; safe stand-off distances.

Administrative Controls: Competent persons only; barricade work area.

Personal Protective Equipment (PPE): FOBS, comms and eye protection

7.6 Filling Requirements (Overburden Placement)

Elimination / Substitution: Prohibit tipping directly over unstable or uncompacted ground.

Engineering Controls: Tipping overburden away from pit edge; use of bunds.

Administrative Controls: Tipping procedure; supervisor sign-off; monitoring for slumping.

Personal Protective Equipment (PPE): Standard site PPE (high-vis & steel cap boots).

8. OPERATIONAL PROCEDURES

8.1 Stockpile Management & Inspection

Scope: Applies to all stockpiles >5 m high or near traffic areas.

Steps:

1. Operator to perform **daily visual check** for cracks, slumping, or seepage.
2. Supervisor to conduct **weekly inspection** using stockpile checklist.
3. Post-weather event (>20 mm in 24 hrs): Supervisor reinspects before recommencement.
4. Exclude personnel and plant from stockpiles showing instability until rectified.

Responsibilities: Operator (daily), Supervisor (weekly & post-rain), Quarry Manager (review & sign-off).

References: WHS (Mines) Reg 2022 Sch 1 (m), TARP triggers (Level 2/3).

8.2 Fill Placement & Verification

Scope: Applies to all overburden/fill placement areas.

Steps:

1. Place fill in **controlled layers** and compact as per design.
2. Supervisor to record placement and obtain **geotechnical sign-off**.
3. Mark **unverified fill areas** with barricades/exclusion signage.
4. Heavy plant must not access until area is signed off.

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Responsibilities: Operator (placement), Supervisor (verification & records), Geotech/Engineer (sign-off).

References: WHS (Mines) Reg 2022 Sch 1 (n).

8.3 Bundwall Construction & Monitoring

Scope: Applies to all bunds, haul road berms, and containment walls.

Steps:

1. Construct bunds to **engineered standards** (wheel height of largest vehicle).
2. Inspect weekly for **erosion, cracks, or seepage**.
3. Post-storm (>20 mm rain): Supervisor to reinspect before recommencement.
4. Maintain freeboard and spillway function.

Responsibilities: Supervisor (inspections), Operators (daily checks), Quarry Manager (review).

References: WHS (Mines) Reg 2022 Sch 1 (i), (o).

8.4 Slope & Batter Stability

Scope: Applies to all pit walls, benches, and batters.

Steps:

1. Operator to conduct **visual check daily** during operations.
2. Supervisor to inspect weekly for cracks, water ingress, or slumping.
3. Where defects identified: isolate zone, notify Quarry Manager, activate TARP.
4. Rehabilitation required before abandonment of worked-out areas.

Responsibilities: Operator (daily), Supervisor (weekly), Quarry Manager (remediation sign-off).

References: WHS (Mines) Reg 2022 Sch 1 (d), (o), TARP escalation.

8.5 Scaling of Loose Material

Scope: Applies to all faces and walls where loose material may pose risk.

Steps:

1. Perform scaling using **plant-based methods** where practicable (e.g. excavator, loader bucket).
2. If manual scaling required: competent person only, use scaling bar, establish exclusion zone.
3. Supervisor to verify area safe before recommencement of work.

Responsibilities: Operator/Scaling Crew (execution), Supervisor (authorisation & verification).

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References: WHS (Mines) Reg 2022 Sch 1 (q).

8.6 Groundwater & Drainage Management

Scope: Applies to pit floor, ramps, and sump management.

Steps:

1. Install diversion drains to redirect water away from walls.
2. Operate pumps per SWMS, ensure regular maintenance.
3. Stop excavation during or immediately after rain events >20 mm until inspection completed.
4. Record water ingress and report to Supervisor.

Responsibilities: Operator (reporting), Supervisor (monitoring & post-rain inspections), Quarry Manager (resources & review).

References: WHS (Mines) Reg 2022 Sch 1 (b), (c).

9. MONITORING

- **Visual inspections daily**
- **Geotechnical audits annually**
- **Records of cracks, wall movement, or failures maintained**

Records: Maintain monitoring logs, TARP activations, incident reports for regulatory compliance

10. COMMUNICATION & REPORTING

- Toolbox talks to highlight ground risks
- Hazards reported immediately to the supervisor
- Results displayed on HSE noticeboard

11. REVIEW

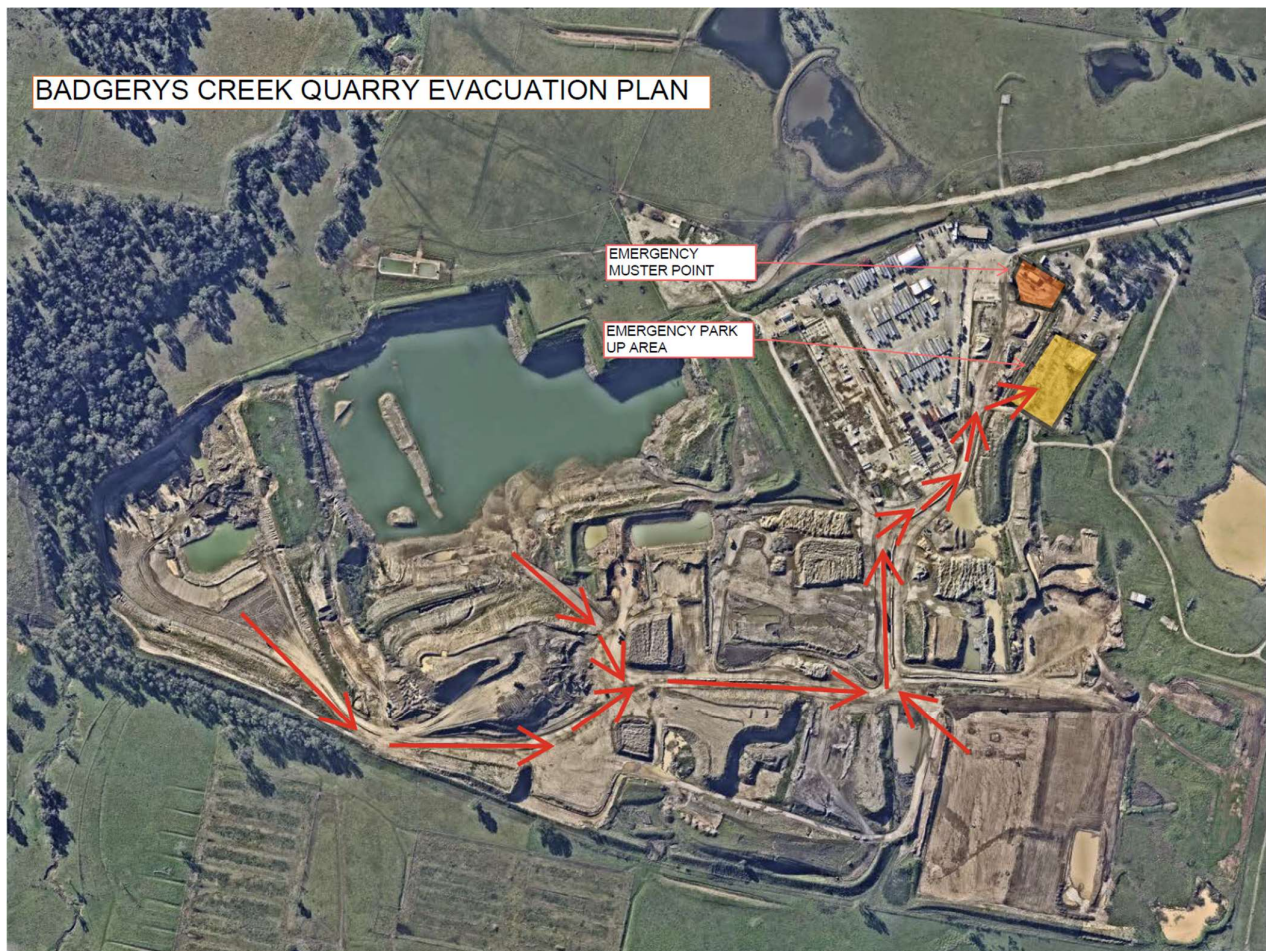
- PCP reviewed quarterly and after post incidents
- Updates include consultation with workers
- Review effectiveness of controls, monitoring data, and TARP triggers
- Record and track corrective actions

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12. EMERGENCY RESPONSE

- Stop work if instability detected
- Evacuate personnel to safe location
- Notify Site Supervisor
- Escalate to Quarry Manager and Mines Regulator if collapse occurs
- Record event in hazard register

13. BADGERYS CREEK QUARRY EVACUATION PLAN



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EMERGENCY RESPONSE CONTACT DETAILS

Emergency Response Team Contacts:			
Chief Warden	Damon Sydir	Contact No.:	0428 791 977
Deputy Warden	Darrel Burwick	Contact No.:	0414 942 434
First Aid Officer:	Andrew Carpenter	Contact No.:	0422 097 940
First Aid Officer:	Anthony Kosicki	Contact No.:	0450 500 670
First Aid Officer:	Lachlan Willis	Contact No.:	0476 178 469
Fire Warden:	Mick Ford	Contact No.:	0401 192 621
Fire Warden:	Anthony Mitchel	Contact No.:	0403 290 075
Fire Warden:	Joe Bartlow	Contact No.:	0407 100 733
Quarry Manager	Blake Newell	Contact No.:	0407 794 068
WHS Manager	Shane Wilson	Contact No.:	0418 445 043
WHS Coordinator	Talia Miler	Contact No.:	0448 837 189
Monier Contact	Phil Tutton	Contact No.:	0433 249 340
Operations Manager:	Chris Miler	Contact No.:	0407 457 698
Transport Manager	Jason Yates	Contact No.:	0448 491 546
Workshop Manager	Warren Leahy	Contact No.:	0408 363 833
Emergency Contacts:			
Emergency Services	000 or 112		
MINE SAFETY DEPARTMENT	1300 814 609		
Environmental Protection Authority (EPA)	SYDNEY OFFICE: (02) 9995 5000 POLLUTION LINE: 131 555		

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14. PRINCIPAL HAZARD RISK MATRIX

Ground Strata Failure						
WORK HEALTH AND SAFETY (MINES) REGULATION 2022 - SCHEDULE 1 Part 1 - Principal mining hazard management plans - Mines						
The following matters must be considered in developing the control measures to manage the risks ground strata failure:	Identified Risk	Consequence	Likelihood	Risk Score	Risk Rating	Controls recommended
(a) the local geological structure,	Yes	3. Serious	D. Not Likely to Occur	17	Low	Geotech model/engineer review; face mapping; update bench/batter criteria when new geology observed
(b) the local hydrogeological environment, including surface and ground water,	Yes	3. Serious	C. Could Occur	13	Medium	Wet season/rain events can influence slopes. Controls: drainage, post-rain inspections, rainfall triggers in TAMP.
(c) the means by which water may enter the mine, and the procedures for removing water from the mine and the effect that those procedures have on rock stability over time,	Yes	4. Minor	D. Not Likely to Occur	21	Low	Mine Operating Plan, Risk Assess and SVMS for (water pump procedure) No excavation in the mine area when a rain event occurs
(d) the geotechnical characteristics of the rocks and soil, including the effects of time, oxidation and water on rock support and stability,	Yes	4. Minor	D. Not Likely to Occur	21	Low	Mine Operating Plan, Bench and batter design as per the engineers specifications
(e) the timing of installation of ground and strata support for the mine, taking into account the geotechnical conditions and behaviour of the rocks and soil,	Yes	4. Minor	D. Not Likely to Occur	21	Low	Mine Operating Plan, Bench and batter design as per the engineers specifications
(f) the collection, analysis and interpretation of relevant geotechnical data, including the monitoring of openings and excavations,	Yes	4. Minor	D. Not Likely to Occur	21	Low	Weekly / Post Weather Event Mine Site Inspection.
(g) any natural or induced seismic activity,	N/A			N/A	N/A	No underground workings; no induced seismic monitoring program required
(h) the equipment and procedures used to record, interpret and analyse data from the monitoring of seismic activity,	N/A			N/A	N/A	No underground workings; no induced seismic monitoring program required
(i) the location and loadings from existing or proposed mine infrastructure such as waste dumps, tailings storage, haul roads and mine facilities,	Yes	3. Serious	C. Could Occur	13	Medium	Berm edge/road loadings near voids. Controls: berm height/width standards, setbacks, formal weekly checks.
(j) any previously excavated or abandoned workings,	Yes	4. Minor	D. Not Likely to Occur	21	Low	Mine Operating Plan, Bench and batter design as per the engineers specifications
(k) the proposed and existing mining operations, including the nature and number of excavations, the number and size of permanent or temporary voids or openings, backfilling of mined areas and stopes, abutments, periodic weighting and windblast or airblast,	Yes	4. Minor	D. Not Likely to Occur	21	Low	Mine Operating Plan, TMP and the engineers specifications
(l) the proposed blasting activities (including the design, control and monitoring of each blast),	N/A			N/A	N/A	
(m) the design, layout, operation, construction and maintenance of any dump, stockpile or emplacement area at the mine, including any open cut dumps or stockpiles,	Yes	3. Serious	C. Could Occur	13	Medium	height limits, placement rules, exclusion zones, post-rain checks.
(n) the filling requirements for mined areas and the material to be used as fill,	Yes	3. Serious	C. Could Occur	13	Medium	Unverified fills can slump. Controls: compaction verification, geotech sign-off, segregate unverified areas.
(o) the stability of any slopes,	Yes	3. Serious	C. Could Occur	13	Medium	dge/batter instability can be major if a vehicle/plant is affected. Controls: bench/batter criteria, daily face checks, immediate exclusion on defects.
(p) the size and geometry of the mine's openings,	Yes	4. Minor	D. Not Likely to Occur	21	Low	Mine Operating Plan, Bench and batter design as per the engineers specifications
(q) the use of appropriate equipment and procedures for scaling,	Yes	4. Minor	D. Not Likely to Occur	21	Low	Simple scaling of loose material from faces to remove loose material to rehabilitate pits.
(r) the design, installation and quality of rock support and reinforcement,	N/A			N/A	N/A	
(s) the need to monitor areas at or around the mine where control measures are in place for the principal mining hazard of ground or strata failure,	Yes	4. Minor	D. Not Likely to Occur	21	Low	Weekly / Post Weather Event Mine Site Inspection.
(t) in the case of an underground mine-the stope and pillar dimensions,	N/A			N/A	N/A	
(u) in the case of an underground coal mine-the strata support requirements for the mine and the pillar strength and stability required to provide that support and the probability of instability of any pillar taking into account the pillar's role,	N/A			N/A	N/A	
(v) in the case of highwall mining, pillar and highwall support, the interaction of persons and plant.	Yes	4. Minor	D. Not Likely to Occur	21	Low	Mine Operating Plan, Bench and batter design as per the engineers specifications
(2) In determining the strata support requirements under subclause (1) (u), the maximum width between pillars and the minimum possible dimension of any such pillar for each part of the mine are to be included in the principal mining hazard management plan along with the calculations used to determine those matters.	N/A			N/A	N/A	
(3) A principal hazard management plan for an underground coal mine that addresses the proposed widening of an existing underground roadway to a width greater than 5.5m must include the following— (a) engineering drawings of the proposal endorsed by the individual nominated to exercise the statutory function of mining engineering manager at the mine, (b) a geotechnical report on the proposal, (c) details of relevant strata control for the proposal.	N/A			N/A	N/A	

ONSITE HAZARDS IDENTIFIED						
Consequence	Likelihood					
	A. Commonly Occurs	B. Has Occurred	C. Could Occur	D. Not Likely to Occur	E. Practically Impossible	
1. Catastrophic	1 - High	2 - High	3 - High	4 - High	5 - High	
2. Major	3 - High	5 - High	8 - Medium	12 - Medium	16 - Medium	
3. Serious	6 - High	9 - Medium	13 - Medium	17 - Low	20 - Low	
4. Minor	10 - Medium	14 - Medium	20 - Low	24 - Low	28 - Low	
5. Nil impact, injury or damage	15 - Medium	18 - Medium	22 - Low	26 - Low	30 - Low	

ONSITE HAZARDS	Identified Risk	Short Rationale	Consequence	Likelihood	Risk Score	Risk Rating	Primary Controls recommended
Stockpiles	Yes	Stockpiles are commonly a medium-level strata hazard on quarry sites — they can bury personnel/plant (serious) and have a realistic chance of occurrence if not actively managed.	3. Serious	C. Could Occur	13	Medium	Benching, load procedure, degrading, ramps, stability inspections, exclusion zones and operator inspections.
Uncontrolled Fill Areas	Yes	Uncontrolled fills are commonly a medium-level strata hazard on quarry sites — they can bury personnel/plant (serious) and have a realistic chance of occurrence if not actively managed.	3. Serious	C. Could Occur	13	Medium	Benching, load procedure, degrading, ramps, stability inspections, exclusion zones.
Bundwalls	Yes	Bundwalls store/contain water or material; failure has major consequences (vehicle entrapment, washout) but is less likely with proper maintenance	2. Major	B. Has Occurred	5	High	Benching, load procedure, degrading, ramps, stability inspections, exclusion zones

APPENDIX 10: Ground Strata PHMP

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Revision Number: 02			Page 1 of 4

PRINCIPAL HAZARD MANAGEMENT PLAN GROUND STRATA BADGERYS CREEK QUARRY



DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	20/08/2024	Review and Updates following Risk assessment reviews	SW
2.	13/08/2025	Review and Updates following Risk assessment reviews	BN

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9. <i>REVIEW & CONTINUOUS IMPROVEMENT</i>	4

1. PURPOSE

This PHMP identifies the principal hazards associated with ground strata at Badgerys Creek Quarry and outlines overarching strategies to manage associated risks.

It supports the implementation of detailed control measures provided in the **Principal Control Plan (PCP)** for Ground Strata.

2. SCOPE

Applies to all workers, contractors, and visitors exposed to ground stability hazards generated from:

- Quarry excavations
- Stockpiles and Dumps
- Rehabilitation works

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3. REFERENCES

3.1 Legislation

- WHS Act 2011; WHS Regulation 2017; WHS (Mines and Petroleum Sites) Regulation 2022

3.2 Codes of Practice

- NSW Code of Practice – Inundation and Inrush Hazard Management (2015)

3.3 Australian Standards

- AS 1726 Geotechnical Site Investigations

4. PRINCIPAL HAZARDS

- Pit wall instability
- Bench collapse
- Stockpile or dump collapse
- Ground movement after rain or seismic events

5. RISK ASSESSMENT SUMMARY

Hazard	Likelihood (without controls)	Potential Consequence	Risk Rating
Ground Failure (walls, stockpiles)	High	Fatality, serious injury, plant damage	High

6. HIGH-LEVEL CONTROL OVERVIEW

- **Elimination/Substitution:** Exclusion zones, restricted access
- **Engineering:** Bench design, wall scaling, drainage
- **Administrative:** Geotechnical inspections, weather-triggered checks
- **PPE:** Hard hats, high-visibility clothing, boots

Note: Detailed operational procedures, monitoring, and TARP levels are documented in the PCP.

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7. EMERGENCY RESPONSE

- Stop work and evacuate exclusion zone if signs of instability are detected
- Notify Site Supervisor and implement TARP
- Activate emergency response plan if collapse occurs

8. CROSS-REFERENCE TO PCP

For detailed operational controls, TARP, monitoring, and roles/responsibilities, refer to:
Principal Control Plan – Ground Strata, Badgerys Creek Quarry

9. REVIEW & CONTINUOUS IMPROVEMENT

- PHMP reviewed **annually** or after incidents/exceedances
- Worker and HSR consultation incorporated in all reviews
- Updates to PHMP informed by monitoring, Inspections, regulator feedback, and corrective actions

APPENDIX 11: Inundation PCP

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PRINCIPAL CONTROL PLAN



INUNDATION BADGERYS CREEK QUARRY

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1. TRIGGER ACTION RESPONSE PLAN (TARP)

Trigger Level	Example Indicators	Actions
Level 1 – Normal	Forecast <20mm/24h, Drains clear, Retention basins have 60% capacity	Continue operations; maintain controls; monitor conditions.
Level 2 – Caution	Forecast > 50mm/24h or 25mm in 1 hour, Retention basins > 75% capacity, Drains show sediment build-up/erosion	Increase inspections, activate pumps, restrict access to low-lying areas, pre-position pumps/hose runs, clear drains/spillways.
Level 3 – Withdrawal	Retention basins Overtopping, Flooding of haul roads, Rapid pit inflow or bund wall breach indicators	Stop work in affected areas, evacuate to high ground, isolate power if required, notify Quarry Manager, log event and commence recovery.

2. DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	12/08/2025	Review and Updates following Risk assessment reviews	BN

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3. PURPOSE

This Principal Control Plan (PCP) provides detailed operational controls, procedures, and responsibilities for managing Inundation at Badgerys Creek Quarry.

It supports the **PHMP – Inundation**, which identifies the hazard, risk assessment, and overarching management strategies.

4. SCOPE

Applies to all workers, contractors, and visitors exposed to ground stability hazards generated from:

- Flooding
- Stormwater run off
- Ground water inflow
- Dam overtopping

5. REFERENCES

- **PHMP – Inundation** (Badgerys Creek Quarry)
- Work Health and Safety (Mines and Petroleum sites) Regulation 2022
- NSW Code of Practice – Inundation and Inrush Hazard Management (2015)

6. ROLES & RESPONSIBILITY – MULGOA QUARRIES PTY LTD

6.1 Directors & General Manager

- Provide strategic leadership and demonstrate commitment to managing dust and airborne contaminants.
- Ensure adequate funding, staffing, and equipment are provided to implement this PCP effectively.
- Approve the PCP and any significant updates following reviews.
- Receive and review high-level monitoring reports, incident summaries, and audit outcomes.
- Ensure the organisation complies with all relevant legislation and regulatory requirements.
- Hold the Quarry Manager accountable for the implementation and performance of the plan.

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6.2 Quarry Manager

- Ensure the PCP is implemented and integrated into daily operations.
- Ensure flood controls are in place
- Escalate to regulator if needed
- Lead post-incident reviews and ensure corrective actions are completed.

6.3 Site Supervisor

- Conduct regular inspections of work areas.
- Monitor water levels.
- Enforce access restrictions.
- Initiate Trigger Action Response Plan (TARP) measures immediately when trigger levels are reached.
- Provide toolbox talks and reinforce safe work procedures.

6.4 WHS Manager & WHS Coordinators

- Conduct audits on flood controls.
- Maintain all records of monitoring, inspections, and TARP activations.

6.5 Operators, Contractors & Visitors

- Participate in training on Emergency response plan drills.
- Immediately report any visible hazards to a supervisor.
- Stop work if safe conditions cannot be maintained and notify the supervisor.
- Comply with restrictions.
- Assist in evacuations.

7. CONTROL MEASURES

7.1 V-drains (blockage/undercut)

Elimination / Substitution: Design drainage to bypass work areas.

Engineering Controls: Rock lining, energy dissipators, silt traps

Administrative Controls: Regular cleaning/maintenance, inspection schedule pre/post-storm.

Personal Protective Equipment (PPE): Hi-vis & waterproof PPE during drain clearing.

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7.2 Uncontrolled fill areas (erosion/settlement)

Elimination / Substitution: Exclude heavy plant until verified stable.

Engineering Controls: Compaction testing, batter slopes $\leq$ design, surface drainage.

Administrative Controls: Fill placement procedure, geotech sign-off.

Personal Protective Equipment (PPE): Standard PPE during fill placement/inspection.

7.3 Bundwalls (integrity/breach)

Elimination / Substitution: Freeboard maintained, spillways sized for design storm, compacted clay core or rock armouring.

Engineering Controls: Compaction testing, batter slopes $\leq$ design, surface drainage.

Administrative Controls: Weekly/monthly inspections, defect close-out process.

Personal Protective Equipment (PPE): Hi-vis, safe access for inspection.

7.4 Overflows (Retention Basins overtopping)

Elimination / Substitution: Stormwater diversions around pits.

Engineering Controls: Install level gauges, maintain emergency pumping, de-silt ponds, maintain spillway.

Administrative Controls: Water balance monitoring, pre-rain event pumping.

Personal Protective Equipment (PPE): Lifejackets/Life buoys if working near water during pumping.

7.5 Pit evacuation (rapid inundation)

Elimination / Substitution: Restrict work in pit during forecast extreme rainfall.

Engineering Controls: Install pump within working pit

Administrative Controls: Regular cleaning/maintenance, inspection schedule pre/post-storm.

Personal Protective Equipment (PPE): Lifejackets/Life buoys & comms during High risk work.

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8. OPERATIONAL PROCEDURES

8.1 Drainage & Diversion Management

Scope: Applies to all surface water controls, drains, and diversion structures.

Steps:

1. Construct and maintain diversion drains around pit and stockpiles.
2. Inspect drains weekly and after rainfall for blockages/erosion.
3. Clear silt and debris promptly.
4. Record inspections in logbook.

Responsibilities: Operators (report defects), Supervisors (weekly checks), Quarry Manager (review & resources).

References: WHS (Mines) Reg 2022 Sch 1 (c).

8.2 Bundwall & Containment Structures

Scope: Applies to all bunds, containment walls, and levees protecting pits and haul roads.

Steps:

1. Maintain bunds to design height and freeboard.
2. Inspect weekly and after rain for cracks, seepage, erosion.
3. Repair defects immediately or isolate area until rectified.
4. Maintain spillways to safely discharge excess water.

Responsibilities: Supervisors (weekly/post-rain inspections), Operators (daily checks), Quarry Manager (oversight).

References: WHS (Mines) Reg 2022 Sch 1 (c), (d).

8.3 Pumping & Water Removal

Scope: Applies to sump pumps, pit dewatering, and water discharge.

Steps:

1. Maintain pump fleet in accordance with OEM specifications.
2. Operate pumps via approved SWMS; operators trained and authorised.
3. Discharge water only to approved containment areas.
4. Cease excavation during heavy rainfall until pumping reduces water level and Supervisor inspects.

Responsibilities: Operators (daily checks & operation), Supervisor (inspection & monitoring), Quarry Manager (compliance & resourcing).

References: WHS (Mines) Reg 2022 Sch 1 (c).

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8.4 Inspection After Weather Events

Scope: Applies to all pits, stockpiles, bunds, and drainage systems.

Steps:

1. After rainfall ≥ 20 mm in 24 hrs, Supervisor to inspect pit, bunds, drains, and stockpiles before restarting operations.
2. Record findings in logbook; escalate to Quarry Manager if defects found.
3. Exclude personnel and plant from inundated areas until made safe.

Responsibilities: Supervisors (inspections), Operators (assist & report defects), Quarry Manager (sign-off).

References: WHS (Mines) Reg 2022 Sch 1 (b), (c).

8.5 Emergency Response to Inundation

Scope: Applies to sudden water ingress, bund failure, or extreme rainfall.

Steps:

1. Stop work immediately; issue **UHF all-call**.
2. Evacuate personnel and plant to high ground/muster points.
3. Notify Quarry Manager and activate ERP.
4. Quarry Manager to contact emergency services and Regulator if required.
5. No re-entry until geotechnical/engineering review and sign-off.

Responsibilities: All personnel (raise alarm, evacuate), Supervisor (account for workforce), Quarry Manager (notifications & ERP activation).

References: WHS (Mines) Reg 2022 Sch 1 (c), TARP Level 3.

9. MONITORING

- **Weather forecasts checked daily**
- **Visual checks of water levels during shifts**
- **Monthly audit of drainage infrastructure**

Records: Maintain monitoring logs, TARP activations, incident reports for regulatory compliance

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10. COMMUNICATION & REPORTING

- Toolbox talks before forecast rain events
- Hazards and water level changes reported to Supervisor
- Updates displayed on HSE board

11. REVIEW

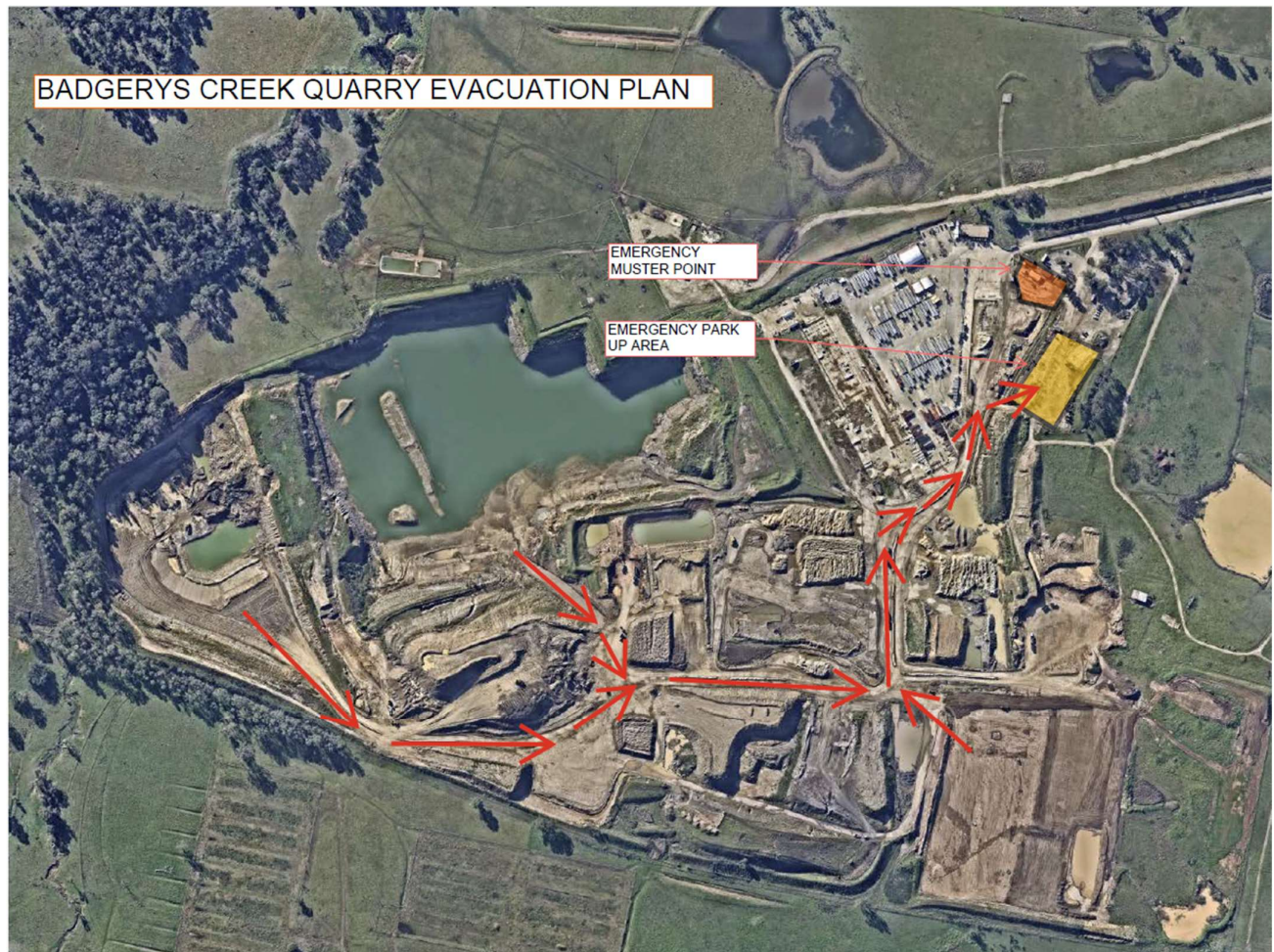
- PCP reviewed quarterly and after flood events
- Updates include consultation with workers
- Review effectiveness of controls, monitoring data, and TARP triggers
- Record and track corrective actions

12. EMERGENCY RESPONSE

- Cease operations in flood areas
- Evacuate to high ground
- Notify Site Supervisor
- Notify Supervisor, Quarry Manager, and Mines Regulator if significant inundation occurs
- Record incident in hazard register

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13. BADGERYS CREEK QUARRY EVACUATION PLAN



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EMERGENCY RESPONSE CONTACT DETAILS

Emergency Response Team Contacts:			
Chief Warden	Damon Sydir	Contact No.:	0428 791 977
Deputy Warden	Darrel Burwick	Contact No.:	0414 942 434
First Aid Officer:	Andrew Carpenter	Contact No.:	0422 097 940
First Aid Officer:	Anthony Kosicki	Contact No.:	0450 500 670
First Aid Officer:	Lachlan Willis	Contact No.:	0476 178 469
Fire Warden:	Mick Ford	Contact No.:	0401 192 621
Fire Warden:	Anthony Mitchel	Contact No.:	0403 290 075
Fire Warden:	Joe Bartlow	Contact No.:	0407 100 733
Quarry Manager	Blake Newell	Contact No.:	0407 794 068
WHS Manager	Shane Wilson	Contact No.:	0418 445 043
WHS Coordinator	Talia Miler	Contact No.:	0448 837 189
Monier Contact	Phil Tutton	Contact No.:	0433 249 340
Operations Manager:	Chris Miler	Contact No.:	0407 457 698
Transport Manager	Jason Yates	Contact No.:	0448 491 546
Workshop Manager	Warren Leahy	Contact No.:	0408 363 833
Emergency Contacts:			
Emergency Services	000 or 112		
MINE SAFETY DEPARTMENT	1300 814 609		
Environmental Protection Authority (EPA)	SYDNEY OFFICE: (02) 9995 5000 POLLUTION LINE: 131 555		

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14. PRINCIPAL HAZARD RISK MATRIX

Inundation and Inrush						
WORK HEALTH AND SAFETY (MINES) REGULATION 2022 - SCHEDULE 1 Part 1 - Mines 2 Inundation or inrush of substances						
The following matters must be considered in developing the control measures to manage the risks of inundation or inrush of any substance:	Identified Risk	Consequence	Likelihood	Risk Score	Risk Rating	Controls recommended
(a) the potential sources of inundation, including extreme weather, overflow or failure of levees and dam structures, failure or blocking of flow channels (including regular, overflow or emergency flow channels),	Yes	3. Serious	D. Not Likely to Occur	17	Low	Ongoing weather monitoring and removal of Mobile Plant prior to major events NOTE: During high fall rain events, no personnel will be near the open cut extraction area
(b) the location, design and construction of dams, lagoons, tailings dams, emplacement areas and any other bodies of water or material that could enter the mine, including any such entry because of extreme weather conditions such as a cyclone,	Yes	3. Serious	D. Not Likely to Occur	17	Low	Ongoing weather monitoring and removal of Mobile Plant prior to major events NOTE: During high fall rain events, no personnel will be near the open cut extraction area
(c) the potential sources of inrush including current, disused or abandoned mine workings, surface water bodies, backfill operations, highly permeable aquifers, bore-holes, faults or other geological weaknesses,	Yes	3. Serious	D. Not Likely to Occur	17	Low	Weekly / Post Weather Event Mine Site Inspection.
(d) the location of other workings and the strength of the ground (including the geotechnical characteristics of the rock) between those workings,	Yes	3. Serious	D. Not Likely to Occur	17	Low	Weekly Inspections conducted by Geotechnical Engineer
(e) the potential for the accumulation of water, gas or other substances or materials that could liquefy or flow into other workings or locations,	Yes	3. Serious	D. Not Likely to Occur	17	Low	Weekly / Post Weather Event Mine Site Inspection.
(f) the magnitude of all potential sources and maximum flow rates,	Yes	3. Serious	D. Not Likely to Occur	17	Low	Ongoing weather monitoring and removal of Mobile Plant prior to major events NOTE: During high fall rain events, no personnel will be near the open cut extraction area
(g) the worst possible health and safety consequences of each potential source, including the accuracy of plans of other workings, variation in rock properties and geological weaknesses,	Yes	4. Minor	D. Not Likely to Occur	17	Low	Ongoing weather monitoring and removal of Mobile Plant prior to major events NOTE: During high fall rain events, no personnel will be near the open cut extraction area
(h) survey plans of the mine including any historical survey plans.	N/A			NA	NA	
(2) A principal mining hazard management plan that addresses inundation or inrush of any substance is to include details of any special systems of working developed for inrush control zones established under clause 45 of this Regulation and the assumptions underpinning the development of any such system.	N/A			NA	NA	

ONSITE HAZARDS IDENTIFIED						
Consequence	Likelihood					
	A. Commonly Occurs	B. Has Occurred	C. Could Occur	D. Not Likely to Occur	E. Practically Impossible	
1. Catastrophic	1-High	2-High	4-High	7-Medium	11-Medium	
2. Major	3-High	5-High	6-Medium	12-Medium	15-Low	
3. Serious	6-High	8-Medium	13-Medium	14-Low	20-Low	
4. Minor	10-Medium	14-Medium	18-Low	21-Low	23-Low	
5. Nil impact, injury or damage	16-Medium	17-Low	22-Low	24-Low	25-Low	

ONSITE HAZARDS	Identified Risk	Short Rationale	Consequence	Likelihood	Risk Score	Risk Rating	Primary Controls recommended
V-drains (blockage/undercut)	Yes	Blocked or eroded drains divert water onto roads/into pit; common in storms.	3. Serious	C. Could Occur	43	Medium	Routine cleaning; rock lining at high-velocity sections; check dams/silt traps; pre-storm inspections; repair gullies immediately.
Uncontrolled fill areas (runoff/erosion)	Yes	Poorly compacted fill channels water, causing erosion and local failures.	3. Serious	C. Could Occur	13	Medium	Compaction verification; batter protection (mulch/armour); diversion bunds; mark/segregate unverified fill; post-rain checks.
Bundwalls (integrity/breach)	Yes	Breach can release stored water to work areas/roads.	2. Major	C. Could Occur	8	Medium	Maintain freeboard; spillway sized to design storm; toe/crest inspections; immediate erosion repairs; vegetation control; post-storm inspection before restart. (If you've had a breach before, set L-B → score 6 High.)
Overflows (overtopping of ponds/dams)	Yes	Overtopping damages embankments and floods haul roads/pit.	2. Major	C. Could Occur	8	Medium	Calibrated level gauges; emergency pumping capacity; clear spillways; de-silt to restore storage; stormwater diversion around pit. (If a past overtopping occurred: L-B → 5 High.)
Pit evacuation (rapid inundation/entrapment)	Yes	Extreme rain or pump failure floods pit—entrap plant/personnel.	1. Catastrophic	D. Not Likely	7	Medium	Weather triggers; pump capacity ≥ inflow; backup pumps/genset; high-ground egress; stop-work trigger on exceedance; site-wide comms. (If catchment/inflows suggest realistic surge, set L-C → 4 High.)

APPENDIX 12: Inundation PHMP

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PRINCIPAL HAZARD MANAGEMENT PLAN **INUNDATION** **BADGERYS CREEK QUARRY**



DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	20/08/2024	Review and Updates following Risk assessment reviews	SW
2.	13/08/2025	Review and Updates following Risk assessment reviews	BN

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1. PURPOSE

This PHMP identifies the principal hazards associated with Inundation at Badgerys Creek Quarry and outlines overarching strategies to manage associated risks.

It supports the implementation of detailed control measures provided in the **Principal Control Plan (PCP)** for Inundation.

2. SCOPE

Applies to all workers, contractors, and visitors exposed to ground stability hazards generated from:

- Flooding
- Stormwater run off
- Ground water inflow
- Dam overtopping

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3. REFERENCES

3.1 Legislation

- WHS Act 2011; WHS Regulation 2017; WHS (Mines and Petroleum Sites) Regulation 2022

3.2 Codes of Practice

- NSW Code of Practice – Inundation and Inrush Hazard Management (2015)

4. PRINCIPAL HAZARDS

- Flooding of pits and roadways
- Dam or Pond overtopping
- Entrapment of vehicles or workers

5. RISK ASSESSMENT SUMMARY

Hazard	Likelihood (without controls)	Potential Consequence	Risk Rating
Inundation (Storm, Flood, dam, failure)	Medium	Entrapment, Drowning, asset damage	High

6. HIGH-LEVEL CONTROL OVERVIEW

- **Elimination/Substitution:** Avoid working near dams/ low areas during heavy rain events
- **Engineering:** Drainage, Diversion Bunds, Sump Pumps
- **Administrative:** Weather monitoring, flood evacuation plan
- **PPE:** Life jackets when working near water bodies

Note: Detailed operational procedures, monitoring, and TARP levels are documented in the PCP.

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7. EMERGENCY RESPONSE

- Cease work in flood-prone areas on weather warning
- Evacuate low-lying areas
- Implement flood emergency plan

8. CROSS-REFERENCE TO PCP

For detailed operational controls, TARP, monitoring, and roles/responsibilities, refer to:
Principal Control Plan – Inundation, Badgerys Creek Quarry

9. REVIEW & CONTINUOUS IMPROVEMENT

- PHMP reviewed **annually** or after incident/flood event
- Worker and HSR consultation incorporated in all reviews
- Updates to PHMP informed by monitoring, Inspections, regulator feedback, and corrective actions

APPENDIX 13: Mechanical Engineering PCP

 MULGOA QUARRIES EST. 1964	MECHANICAL ENGINEERING	Approved By: Mining Manager	Reference: PCP Date: 9/09/2025
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PRINCIPAL CONTROL PLAN



**MECHANICAL ENGINEERING
BADGERYS CREEK QUARRY**

 MULGOA QUARRIES EST. 1964	MECHANICAL ENGINEERING	Approved By: Mining Manager	Reference: PCP Date: 9/09/2025
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1. TRIGGER ACTION RESPONSE PLAN (TARP)

Trigger Level	Example Indicators	Actions
Level 1 – Normal	Plant within design, pre-starts clear	Continue operations, record.
Level 2 – Caution	Minor defect, oil leaks, missing guard	Tag out, restrict use, Supervisor notified.
Level 3 – Emergency	Major defect (brake failure, structural crack, burst line).	Stop work, isolate, evacuate, notify Supervisor / Workshop Manager and Quarry Manager.

2. DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	9/09/2025	Review and Updates following Risk assessment reviews	BN

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3. PURPOSE

The purpose of this Principal Control Plan (PCP) is to provide clear and practical procedures for managing mechanical risks associated with the operation, inspection, maintenance, and modification of mobile and fixed plant, equipment, and structures at the site.

It translates the high-level intent of the Mechanical Engineering Principal Hazard Management Plan (PHMP) into day-to-day operational controls. The PCP aims to:

- Prevent injury to people caused by the operation or maintenance of plant.
- Prevent unintended operation or release of mechanical energy.
- Eliminate or reduce the risk of catastrophic plant or structural failure.
- Minimise risks from lifting, stored energy, hot work, confined space entry, and maintenance activities.
- Ensure plants are introduced, operated, maintained, and decommissioned in accordance with OEM requirements and site standards.

4. SCOPE

This PCP applies to:

- **All mobile and fixed plant** listed in the site Plant Register (IMS-REG-009) and tracked in the Gearbox maintenance system.
- **All mechanical activities** including procurement, installation, commissioning, operation, maintenance, repair, alteration, decommissioning, and disposal of plant.
- **All personnel** involved with mechanical plant including employees, contractors, supervisors, and OEM service providers.
- **All areas of site operations**, including workshops, haul roads, processing plant, and contractor areas where mechanical plant is introduced.

The scope covers both routine and non-routine mechanical work (scheduled servicing, breakdown maintenance, specialist tasks, and major projects). It also applies to plant and structures introduced by contractors or hired/leased equipment.

5. PROCEDURES

5.1 Procurement & Introduction of Plant

Scope: New, second-hand, hired, or contractor's equipment.

Steps: Complete Pre-Placement Checklist (WHS-CKL-06.022/06.010), confirm fit-for-purpose, record in plant register and Gearbox.

Responsibilities: Workshop Manager (sign-off), Site Supervisor (records).

References: IMS-REG-009 Plant Register.

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5.2 Installation & Commissioning

Scope: All plant installation/commissioning.

Steps: Risk managed under IMS-MAN-06. Commissioning records retained. All supervised by competent mechanical person.

Responsibilities: Workshop Manager (supervision).

5.3 Operation of Plant

Scope: Daily operation of mobile/fixed plant.

Steps: Operators perform QR-code pre-starts, report defects, cease unsafe operation.

Responsibilities: Operators, Supervisors (verification).

5.4 Maintenance

Scope: Routine, breakdown, specialist, and major.

Steps:

- Routine: Scheduled per OEM/manuals.
- Breakdown: Tag plant out, risk-assess repair.
- Specialist: Carried out by trained trades (boilermaker, diesel fitter, etc.).
- Major: Requires planning, coordination, OEM support.

Responsibilities: Operators (reporting), Maintainers (repairs), Workshop Manager (compliance).

5.5 Decommissioning & Disposal

Scope: End-of-life plant.

Steps: Risk managed per WHS-CKL-06.010, update register, disposal records with manuals/history provided.

Responsibilities: Workshop Manager.

5.6 Change Management

Scope: Modifications or alterations.

Steps: No changes without Mine Manager approval. Engineer/OEM input where required. Record changes in Gearbox and plant file.

Responsibilities: Mine Manager, Workshop Manager.

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6. CONTROL MEASURES

6.1 Guarding & Access

Engineering: fixed guarding, interlocks, platforms.

Administrative: lockout/tagout, signage, permits.

Elimination: prohibit use of unguarded plant.

PPE: gloves, helmets, eye protection.

6.2 Stored Energy (Hydraulics, Pneumatics)

Engineering: relief valves, lockable isolators.

Administrative: competency training, stored energy release procedures.

Elimination: design-out uncontrolled energy.

PPE: face shields, FR clothing, gloves.

6.3 Lifting Equipment (chains, slings, HIAB)

Engineering: certified lifting gear, rated equipment.

Administrative: lifting permits, inspections, licensed operators.

Elimination: no manual handling of >20kg where avoidable.

PPE: helmets, gloves, boots.

6.4 Mobile Plant Interaction

Engineering: ROPS/FOPS, reversing alarms, seatbelts.

Administrative: licensing, TMP compliance, exclusion zones.

Elimination: no unauthorised operation.

PPE: high-vis, helmets.

6.5 Hot Work (Welding, Grinding, Gas Cutting)

Engineering: extraction fans; welding bays; flashback arrestors.

Administrative: hot work permits; fire watch; training in gas cutting/fume safety.

Elimination: outsource or redesign to avoid hot work where feasible.

PPE: welding visors, FR clothing, gloves, respiratory protection.

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6.6 Pressure Vessels & Compressed Air Systems

Engineering: pressure relief valves; air receiver inspections; isolation valves.

Administrative: compliance with inspection schedules; service by licensed contractors.

Elimination: replace outdated/unsafe vessels; prohibit use of uncertified equipment.

PPE: hearing protection, gloves, goggles.

6.7 Conveyors & Rotating Equipment

Engineering: fixed guarding; pull-wire emergency stops; nip point barriers.

Administrative: lockout/tagout for maintenance; inspection checklists; exclusion zones during operation.

Elimination: prohibit entry to conveyor areas when operating.

PPE: gloves, hard hats, eye protection, hearing protection.

6.8 Confined Spaces (Tanks, Pits, Voids)

Engineering: forced ventilation; access ladders; rescue equipment.

Administrative: confined space permits; gas testing before entry; trained standby person.

Elimination: avoid entry where remote methods are possible.

PPE: harnesses, respiratory protection, gas monitor.

6.9 Structural Integrity & Modifications

Engineering: engineered design for alterations; load rating maintained.

Administrative: change management process; approval by Mine Manager & engineer; record updates in Gearbox.

Elimination: prohibit unauthorised modifications.

PPE: helmets, high-vis, gloves (when inspecting).

7. INSPECTIONS & MONITORING

Daily: Pre-start checks, operators log defects.

Weekly: Supervisors inspect plant, confirm rectification.

Monthly: Workshop Manager audits Gearbox records.

8. REVIEW

Annual: Quarry Manager/OEM review plant register, update MECP.

APPENDIX 14: Mechanical Engineering PHMP

 MULGOA QUARRIES EST. 1964	MECHANICAL ENGINEERING	Approved By: Mining Manager	Reference: PHMP Date: 9/09/2025
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PRINCIPAL HAZARD MANAGEMENT PLAN **MECHANICAL ENGINEERING** **BADGERYS CREEK QUARRY**



DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	20/08/2024	Review and Updates following Risk assessment reviews	SW
2.	13/08/2025	Review and Updates following Risk assessment reviews	BN
3.	9/09/2025	Review and Format changes to include PHMP & PCP	BN

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7. <i>MONITORING</i>	4
8. <i>REVIEW & CONTINUOUS IMPROVEMENT</i>	4

1. PURPOSE

To ensure all mobile and fixed plant, including structures, are designed, acquired, operated, maintained, altered, and decommissioned safely, in line with WHS (Mines) Regulation 2022. The plan ensures compliance with OEM specifications, provides a maintenance history, and prevents injury through safe mechanical practices.

It supports the implementation of detailed control measures provided in the **Principal Control Plan (PCP)** for mechanical engineering.

2. SCOPE

Applies to all workers, contractors, designers, manufacturers, importers, and suppliers associated with mechanical plant and structures onsite. Covers lifecycle from procurement through to disposal.

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3. REFERENCES

3.1 Legislation

WHS (Mines) Regulation 2022 – Schedule 1 Part 2 (Plant and Mechanical Engineering Control).

3.2 Codes of Practice

- NSW Code of Practice – *Managing Risks of Plant in the Workplace, Falls at Workplaces, Confined Spaces, Hazardous Manual Tasks*, Hazardous Chemicals (2019), Welding Processes (2019), Electrical Risks (2019)

4. RESPONSIBILITIES

Mine Manager: Approves MECP, oversees compliance.

Plant Workshop Manager (Competent Person): Technical advice, supervision of mechanical engineering controls.

Supervisors: Ensure pre-starts, inspections, and maintenance are carried out.

Operators: Complete pre-starts, report defects, operate within design limits.

Contractors/OEM specialists: Perform specialist or major maintenance.

5. PRINCIPAL RISKS MANAGED

- Unintended operation of plant.
- Uncontrolled release of mechanical energy (hydraulic, pneumatic, stored).
- Catastrophic failure of plant or structures.
- Exposure to airborne contaminants from mechanical systems.
- Fires fuelled by plant/mechanical failures.
- Injuries from lifting, falling objects, confined space entry, or hot work.

6. RISK ASSESSMENT

Broad-brush assessment completed (WHS-CKI-06.023). Risks scored using site risk matrix. Detailed risk registers maintained in Gearbox and IMS-REG-009 Plant Register.

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7. MONITORING

Daily: pre-starts (QR Code system).

Weekly: supervisor inspections.

Monthly: audits of maintenance records (Gearbox).

8. REVIEW & CONTINUOUS IMPROVEMENT

Annual: review by Quarry Manager and competent mechanical manager.

APPENDIX 15: Roads & Traffic PCP

 MULGOA QUARRIES EST. 1964	ROADS & TRAFFIC	Approved By: Mining Manager	Reference: PCP Date: 13/08/2025
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PRINCIPAL CONTROL PLAN



ROADS & TRAFFIC BADGERYS CREEK QUARRY

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1. *TRIGGER ACTION RESPONSE PLAN (TARP)*

Trigger Level	Example Indicators	Actions
Level 1 – Normal	Traffic moving safely, no incidents	Continue operations & maintain controls.
Level 2 – Caution	Near misses, restricted visibility, wet/slippery roads	Reduce speed, increase signage, deploy spotters, restrict access
Level 3 – Exceedance	Collision, rollover, uncontrolled traffic hazard	Stop traffic, isolate area, activate Emergency Response Plan

2. DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	12/08/2025	Review and Updates following Risk assessment reviews	BN

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3. PURPOSE

This Principal Control Plan (PCP) provides detailed operational controls, procedures, and responsibilities for managing Roads & Traffic at Badgerys Creek Quarry.

It supports the **PHMP – Roads & Traffic**, which identifies the hazard, risk assessment, and overarching management strategies.

4. SCOPE

Applies to all workers, contractors, and visitors exposed to roads and traffic hazards generated from:

- Haul roads and access roads
- Vehicle interactions (light, heavy, and mobile plant)
- Pedestrian traffic
- Stockpiles, dumps, and parking areas
- Adverse weather conditions

5. REFERENCES

- **PHMP – Roads & Traffic Management** (Badgerys Creek Quarry)
- Work Health and Safety (Mines and Petroleum sites) Regulation 2022
- NSW Code of Practice – SafeWork NSW Code of Practice – Managing Health & Safety Risks and NSW Code of Practice – Mechanical Engineering Control Plan (2016)

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6. ROLES & RESPONSIBILITY – MULGOA QUARRIES PTY LTD

6.1 Directors & General Manager

- Provide strategic leadership and demonstrate commitment to managing roads and traffic management.
- Ensure adequate funding, staffing, and equipment are provided to implement this PCP effectively.
- Approve the PCP and any significant updates following reviews.
- Receive and review high-level monitoring reports, incident summaries, and audit outcomes.
- Ensure the organisation complies with all relevant legislation and regulatory requirements.
- Hold the Quarry Manager accountable for the implementation and performance of the plan.

6.2 Quarry Manager

- Ensure the PCP is implemented and integrated into daily operations.
- Design and Oversee TMP,
- Ensure inspections conducted regularly
- Lead post-incident reviews and ensure corrective actions are completed.

6.3 Site Supervisor

- Enforce traffic rules
- Conduct regular inspections of work areas.
- Initiate Trigger Action Response Plan (TARP) measures immediately when trigger levels are reached.
- Provide toolbox talks and reinforce safe work procedures.

6.4 WHS Manager & WHS Coordinators

- Conduct audits on road and traffic management.
- Maintain traffic risk records of monitoring, inspections, and TARP activations and reviews.

6.5 Operators & Contractors

- Comply with TMP.
- Comply with speed limits.
- Comply with call up rules.
- Immediately report any visible hazards to a supervisor.

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6.6 Visitors

- Follow site escort rules.
- Follow site TMP requirements.

7. CONTROL MEASURES

7.1 Mobile Crushing & Screening Operations

Elimination / Substitution: Prohibit LV/pedestrian access near crushing areas.

Engineering Controls: Exclusion zones, guarding, dust suppression, traffic barriers.

Administrative Controls: Operator training, lock-out/tag-out, signage.

Personal Protective Equipment (PPE): Dust masks, Helmets, hearing protection, high-vis.

7.2 Haul Roads

Elimination / Substitution: Close unsafe roads during poor conditions.

Engineering Controls: Design to MDG15, berms, road grading, signage.

Administrative Controls: Speed limits, TMP enforcement, pre-start road checks.

Personal Protective Equipment (PPE): Seatbelts, high-vis.

7.3 Weather Conditions

Elimination / Substitution: Restrict driving during storms/floods.

Engineering Controls: Dust suppression (water carts), road camber for drainage.

Administrative Controls: Stop-work triggers in extreme weather, headlights in low visibility.

Personal Protective Equipment (PPE): Weather-appropriate PPE (wet gear, high-vis).

7.4 Traffic Management Plan (TMP)

Elimination / Substitution: Restrict visitor/LV access to HV areas.

Engineering Controls: Segregated HV/LV roads, designated parking, barriers.

Administrative Controls: Monthly TMP review, driver inductions, UHF communication protocols.

Personal Protective Equipment (PPE): Hi-vis for all drivers/visitors.

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7.5 Wildlife / Animals

Elimination / Substitution: Restrict night driving where practical.

Engineering Controls: Fencing, speed limit and exclusion zones

Administrative Controls: Monthly TMP review, driver inductions, UHF communication protocols.

Personal Protective Equipment (PPE): Seatbelts, standard vehicle PPE.

7.6 Pedestrians

Elimination / Substitution: Prohibit pedestrian access to HV roads.

Engineering Controls: Designated walkways and barriers

Administrative Controls: Exclusion zones, inductions, supervision enforcing TMP rules.

Personal Protective Equipment (PPE): High-vis and steel-cap boots.

7.7 Public / Visitor Access

Elimination / Substitution: Prohibit HV area access for visitors.

Engineering Controls: Designated visitor parking areas; gates

Administrative Controls: Induction, escort system, speed limits.

Personal Protective Equipment (PPE): Hi-vis & steel-cap boots for escorted site entry.

7.8 Power Lines

Elimination / Substitution: Relocate lines underground where feasible.

Engineering Controls: Line markers; barriers; “look up and live” signage.

Administrative Controls: Exclusion zones; spotters; electrical safety procedures.

Personal Protective Equipment (PPE): insulated gloves, arc-rated PPE for authorised work.

7.9 Light Vehicles

Elimination / Substitution: Restrict LV entry to HV haul roads.

Engineering Controls: Vehicle ID numbers; flashing beacons; fire extinguishers fitted.

Administrative Controls: TMP rules; speed limits; licensing checks.

Personal Protective Equipment (PPE): Seatbelts, standard vehicle PPE & Hi-vis for drivers.

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7.10 Road Trucks (external deliveries)

Elimination / Substitution: Restrict truck access during peak HV operations.

Engineering Controls: Designated load/unload bays; wheel stops.

Administrative Controls: Contractor induction; escorts; TMP briefing.

Personal Protective Equipment (PPE): Hi-vis & steel-cap boots- hard hats if required.

7.11 Service Vehicles (incl. Fuel Cart)

Elimination / Substitution: No refuelling near ignition sources.

Engineering Controls: Bunded tanks; spill trays; extinguishers onboard.

Administrative Controls: Refuelling SWMS; trained operators; checklists.

Personal Protective Equipment (PPE): Gloves, goggles, FR clothing.

7.12 Mobile Plant

Elimination / Substitution: Ban unauthorised LV/pedestrian access to plant zones.

Engineering Controls: Reversing alarms, fire suppression, collision avoidance systems.

Administrative Controls: Operator tickets; pre-start checks; traffic segregation.

Personal Protective Equipment (PPE): FR clothing, high-vis, helmets.

7.13 Spills – Grease / Oil / Fuel

Elimination / Substitution: Ban decanting/refuelling in non-designated areas.

Engineering Controls: Bunding; sealed refuelling pads; spill kits installed.

Administrative Controls: Spill response training; inspections; reporting system.

Personal Protective Equipment (PPE): Gloves, goggles, FR clothing.

7.14 Material Movement (silt, mud, clay on roads)

Elimination / Substitution: Restrict traffic until roads are cleared.

Engineering Controls: Road drainage; wheel wash; road camber.

Administrative Controls: Road sweeping; grading; wet weather restrictions.

Personal Protective Equipment (PPE): Hi-vis & seatbelts.

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7.15 *Ramps – Grades / Stability*

Elimination / Substitution: Restrict LV/HV passing on steep ramps.

Engineering Controls: Design ramps $\leq$ grade limits; berms/runaway lanes.

Administrative Controls: TMP enforcement; signage; speed limits.

Personal Protective Equipment (PPE): Hi-vis & seatbelts.

8. OPERATIONAL PROCEDURES

8.1 Drainage & Diversion Management

- **Scope:** Applies to all surface water controls, drains, and diversion structures.
- **Steps:**
 1. Construct and maintain diversion drains around pit and stockpiles.
 2. Inspect drains weekly and after rainfall for blockages/erosion.
 3. Clear silt and debris promptly.
 4. Record inspections in logbook.
- **Responsibilities:** Operators (report defects), Supervisors (weekly checks), Quarry Manager (review & resources).
- **References:** WHS (Mines) Reg 2022 Sch 1 (c).

8.2 Bundwall & Containment Structures

- **Scope:** Applies to all bunds, containment walls, and levees protecting pits and haul roads.
- **Steps:**
 1. Maintain bunds to design height and freeboard.
 2. Inspect weekly and after rain for cracks, seepage, erosion.
 3. Repair defects immediately or isolate area until rectified.
 4. Maintain spillways to safely discharge excess water.
- **Responsibilities:** Supervisors (weekly/post-rain inspections), Operators (daily checks), Quarry Manager (oversight).
- **References:** WHS (Mines) Reg 2022 Sch 1 (c), (d).

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8.3 Pumping & Water Removal

- **Scope:** Applies to sump pumps, pit dewatering, and water discharge.
- **Steps:**
 1. Maintain pump fleet in accordance with OEM specifications.
 2. Operate pumps via approved SWMS; operators trained and authorised.
 3. Discharge water only to approved containment areas.
 4. Cease excavation during heavy rainfall until pumping reduces water level and Supervisor inspects.
- **Responsibilities:** Operators (daily checks & operation), Supervisor (inspection & monitoring), Quarry Manager (compliance & resourcing).
- **References:** WHS (Mines) Reg 2022 Sch 1 (c).

8.4 Inspection After Weather Events

- **Scope:** Applies to all pits, stockpiles, bunds, and drainage systems.
- **Steps:**
 1. After rainfall ≥ 20 mm in 24 hrs, Supervisor to inspect pit, bunds, drains, and stockpiles before restarting operations.
 2. Record findings in logbook; escalate to Quarry Manager if defects found.
 3. Exclude personnel and plant from inundated areas until made safe.
- **Responsibilities:** Supervisors (inspections), Operators (assist & report defects), Quarry Manager (sign-off).
- **References:** WHS (Mines) Reg 2022 Sch 1 (b), (c).

8.5 Emergency Response to Inundation

- **Scope:** Applies to sudden water ingress, bund failure, or extreme rainfall.
- **Steps:**
 1. Stop work immediately; issue **UHF all-call**.
 2. Evacuate personnel and plant to high ground/muster points.
 3. Notify Quarry Manager and activate ERP.
 4. Quarry Manager to contact emergency services and Regulator if required.
 5. No re-entry until geotechnical/engineering review and sign-off.
- **Responsibilities:** All personnel (raise alarm, evacuate), Supervisor (account for workforce), Quarry Manager (notifications & ERP activation).
- **References:** WHS (Mines) Reg 2022 Sch 1 (c), TARP Level 3.

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9. MONITORING

- **Daily supervisor inspections**
- **Near miss/incident records maintained**
- **Regular traffic audits**

Records: Maintain monitoring logs, TARP activations, incident reports for regulatory compliance

10. COMMUNICATION & REPORTING

- TMP Induction for all personnel
- Toolbox talks on traffic hazards
- Updates displayed on HSE board

11. REVIEW

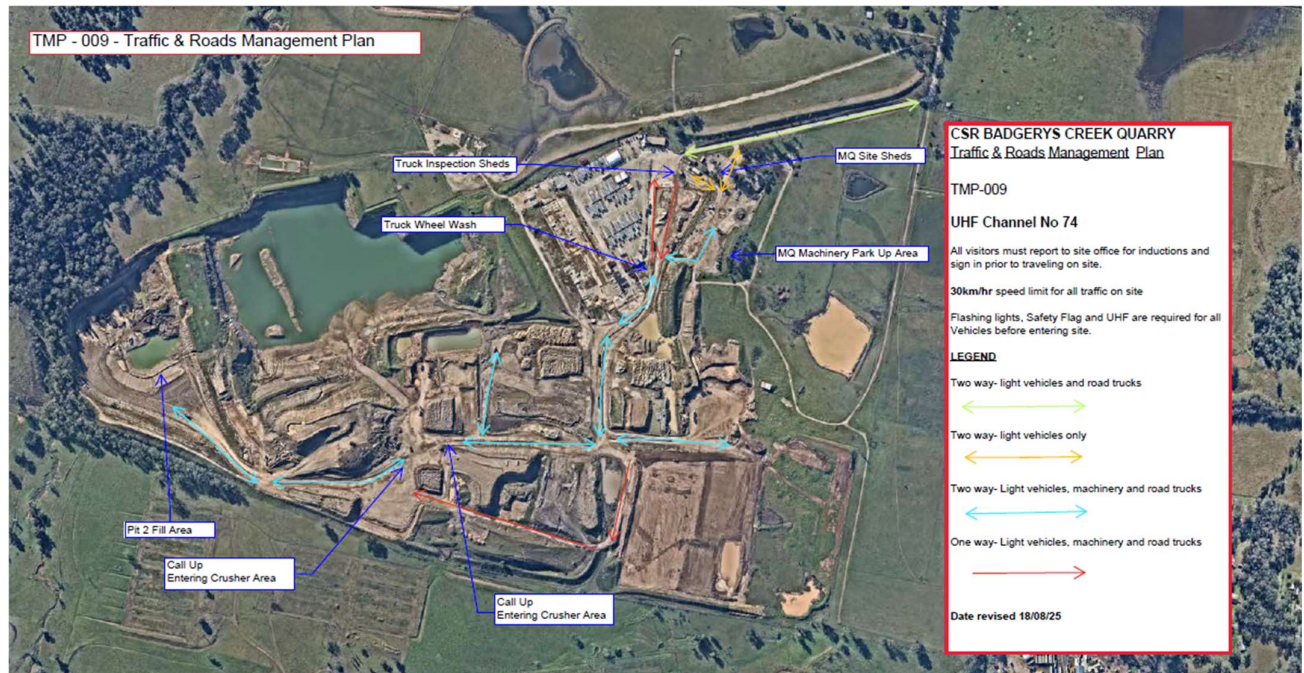
- PCP reviewed quarterly and post-incident
- Worker and contractor input included

12. EMERGENCY RESPONSE

- Stop traffic and secure accident area
- Evacuate and render first aid
- Notify Site Supervisor
- Notify Quarry Manager, WHS team, and Mines Regulator as required
- Record incident in hazard register

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13. ROADS AND TRAFFIC MANAGEMENT PLAN



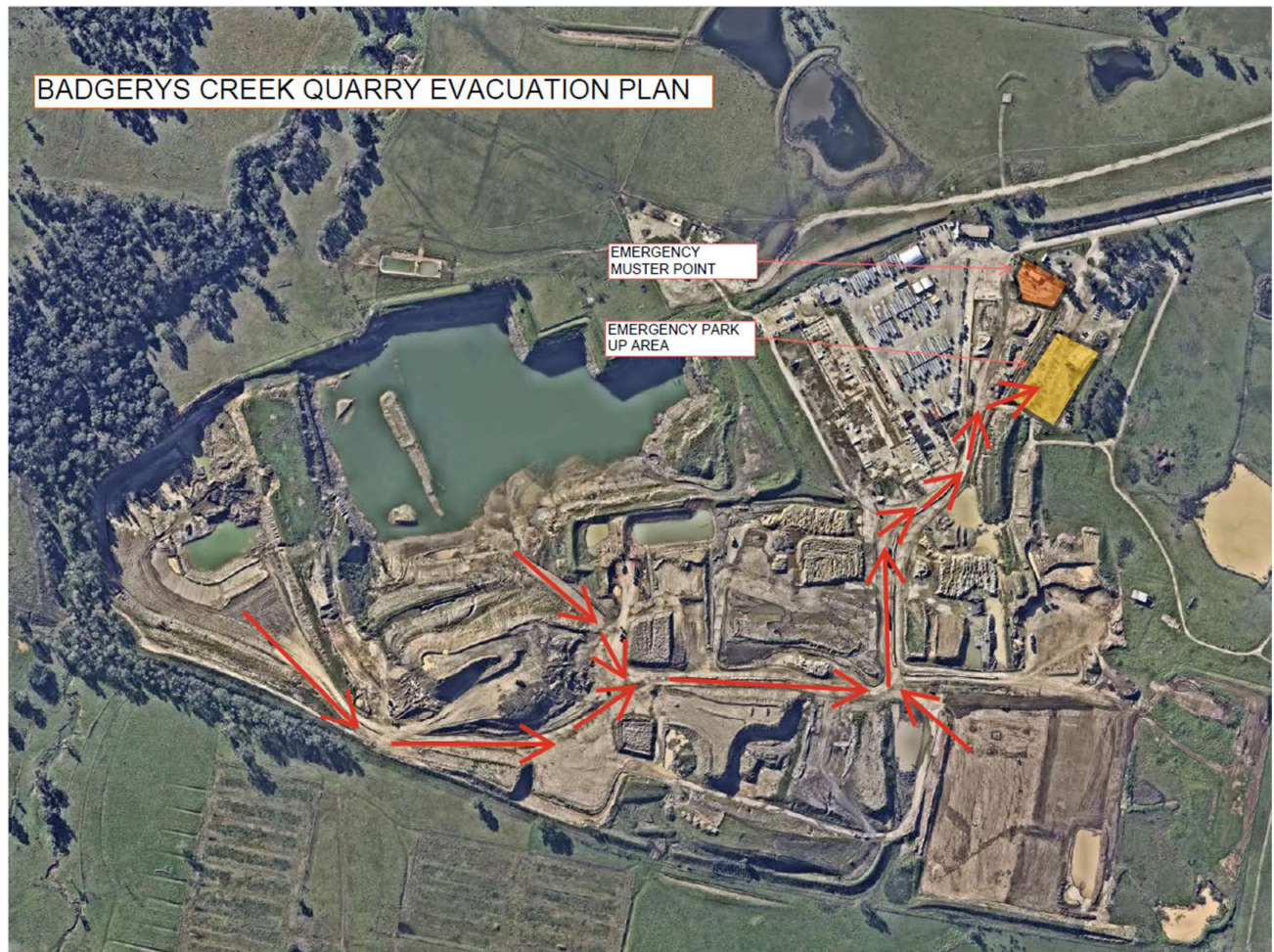
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EMERGENCY RESPONSE CONTACT DETAILS

Emergency Response Team Contacts:			
Chief Warden	Damon Sydir	Contact No.:	0428 791 977
Deputy Warden	Darrel Burwick	Contact No.:	0414 942 434
First Aid Officer:	Andrew Carpenter	Contact No.:	0422 097 940
First Aid Officer:	Anthony Kosicki	Contact No.:	0450 500 670
First Aid Officer:	Lachlan Willis	Contact No.:	0476 178 469
Fire Warden:	Mick Ford	Contact No.:	0401 192 621
Fire Warden:	Anthony Mitchel	Contact No.:	0403 290 075
Fire Warden:	Joe Bartlow	Contact No.:	0407 100 733
Quarry Manager	Blake Newell	Contact No.:	0407 794 068
WHS Manager	Shane Wilson	Contact No.:	0418 445 043
WHS Coordinator	Talia Miler	Contact No.:	0448 837 189
Monier Contact	Phil Tutton	Contact No.:	0433 249 340
Operations Manager:	Chris Miler	Contact No.:	0407 457 698
Transport Manager	Jason Yates	Contact No.:	0448 491 546
Workshop Manager	Warren Leahy	Contact No.:	0408 363 833
Emergency Contacts:			
Emergency Services	000 or 112		
MINE SAFETY DEPARTMENT	1300 814 609		
Environmental Protection Authority (EPA)	SYDNEY OFFICE: (02) 9995 5000 POLLUTION LINE: 131 555		

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14. BADGERYS CREEK QUARRY EVACUATION PLAN



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15. PRINCIPAL HAZARD RISK MATRIX

Roads Vehicle Operation Areas						
WORK HEALTH AND SAFETY (MINES) REGULATION 2022 - SCHEDULE 1 Part 2 - Mines and Petroleum Sites 7 Roads or other operating areas						
The following matters must be considered in developing the control measures to manage the risks of roads or other vehicle operating areas:	Identified Risk	Consequence	Likelihood	Risk Score	Risk Rating	Controls recommended
(a) mobile plant characteristics, including stopping distances, manoeuvrability, operating speeds, driver position, driver line of sight and remote control mobile plant,	Yes	3. Serious	C. Could Occur	13	Medium	Speed limits, operator training/licensing, proximity detection (if fitted), pre-start checks, separation distances.
(b) the effect on road conditions of expected environmental conditions during operating periods (including time of day, weather, temperature and visibility),	Yes	3. Serious	C. Could Occur	13	Medium	Wet weather driving rules, road grading, dust suppression for visibility, headlights in low light, stop-work triggers in extreme storms.
(c) the impact of road design and characteristics, including grade, camber, surface, radius of curves and intersections,	Yes	3. Serious	C. Could Occur	13	Medium	Design to MDG15, adequate width/berms, signage, one-way systems, regular maintenance.
(d) the impact of mine design, including banks and steep drops adjacent to vehicle operating areas,	Yes	3. Serious	D. Not Likely to Occur	17	Low	Windrows/berms at least wheel height of largest vehicle, delineator/signage, safe edge distances, vegetation after rain.
(e) the volume and speed of traffic and the potential for interactions between mobile plant with different operating characteristics, including heavy and light vehicles,	Yes	3. Serious	C. Could Occur	13	Medium	Traffic management plan (TMP), separate HVLV roads where possible, designated LV parking, radio communication protocols.
(f) the potential for interactions between mobile plant and pedestrians, including consideration of park up areas and driver access,	Yes	3. Serious	C. Could Occur	13	Medium	Designated walkways, park-up areas, no-go zones, spotters for reversing, high-vis PPE, lights/beacons on plant.
(g) the potential for interaction between mobile plant and public traffic,	Yes	2. Major	C. Could Occur	8	Medium	Signage, speed limits, flashing lights, escort vehicles, gates/boom gates, traffic control plan.
(h) the potential for interaction between mobile plant and fixed structures, including overhead and underground power lines, tunnel walls and roofs.	Yes	3. Serious	C. Could Occur	13	Medium	Exclusion zones, signage/line markers, maximum height signs, spotters when working near structures.

ONSITE HAZARDS IDENTIFIED						
Consequence	Likelihood					
	A. Commonly Occurs	B. Has Occurred	C. Could Occur	D. Not Likely to Occur	E. Practically Impossible	
1. Catastrophic	1-High	2-High	4-High	7-Medium	11-Medium	
2. Major	3-High	5-High	8-Medium	12-Medium	16-Low	
3. Serious	6-High	9-Medium	13-Medium	17-Low	20-Low	
4. Minor	10-Medium	14-Medium	18-Low	21-Low	23-Low	
5. Nil impact, injury or damage	15-Medium	19-Low	22-Low	24-Low	25-Low	

ONSITE HAZARDS	Identified Risk	Short Rationale	Consequence	Likelihood	Risk Score	Risk Rating	Primary Controls recommended
Mobile Crushing and Screening Operations	Yes	High interaction between fixed plant, conveyors, and vehicles. Hot surfaces/dust may also reduce visibility.	3. Serious	C. Could Occur	13	Medium	Fixed plant traffic exclusion zones, guarding, dust suppression, signage, hot work permits, operator training.
Haul roads	Yes	Heavy vehicle operation with potential rollovers, collisions, or edge run-offs.	2. Major	C. Could Occur	8	Medium	Road design to MDG15, adequate berms (half wheel height rule), one-way traffic, speed limits, road maintenance (grading).
TMP	Yes	Critical control for separation of HVLV and plant. Poor TMP = collisions.	2. Major	B. Has Occurred	5	High	TMP implemented and reviewed annually, designated HVLV roads, park-up zones, signage, radio channels.
Weather Conditions	Yes	Wet weather creates slippery roads; dust reduces visibility; fog or storms reduce driver line-of-sight.	3. Serious	C. Could Occur	13	Medium	Wet weather restrictions, stop-work triggers, dust suppression (water carts), headlights and radios used in low visibility.
Wildlife/ Animals	Yes	Animals crossing roads may cause swerves or collisions.	3. Serious	D. Not Likely to Occur	17	Low	Speed limits, warning signage, driver awareness, no night driving if possible.
Pedestrians	Yes	Pedestrian/plant interaction is a high fatality risk.	1. Catastrophic	C. Could Occur	4	High	Designated walkways, separation barriers, exclusion zones, high-vis PPE, strict park-up rules, spotters when needed.
Power lines	Yes	Mobile plant contact with overhead power = electrocution or fire.	1. Catastrophic	D. Not Likely to Occur	7	Medium	Overhead markers, minimum approach distances, spotters, "look up and live" signage.
Public/ Visitor Access	Yes	Visitors unfamiliar with site risks; LV/HV interaction potential.	2. Major	C. Could Occur	8	Medium	Induction, escorted access, designated parking, sign-in/sign-out, speed limits, site rules explained.
Light Vehicles	Yes	Frequent LV use increases HV/LV interaction risk.	2. Major	C. Could Occur	8	Medium	LV restricted to designated routes, reflective ID numbers, park-up areas away from HV, driver licensing.
Roads Trucks	Yes	External drivers less familiar with site rules.	2. Major	B. Has Occurred	5	High	Contractor induction, escort procedure, TMP compliance, designated loading/unloading zones.
Service vehicles including Fuel Cart	Yes	Frequent trips, fuel load risk, interaction with plant.	2. Major	C. Could Occur	8	Medium	Refuelling SWMS, drip trays, extinguisher onboard, designated refuelling zones, trained operators.
Mobile Plant	Yes	High frequency of interaction with HVLV and pedestrians.	2. Major	A. Commonly Occurs	3	High	TMP, traffic segregation, reversing alarms, flashing beacons, operator training/licensing.
Spills - Grease	Yes	Slippery road hazard + fire risk.	3. Serious	C. Could Occur	13	Medium	Spill kits in all vehicles, bunded refuelling areas, spill response training, prompt clean-up procedures.
Material movement - Sil, Mud, Clay	Yes	Reduces traction, can cause vehicle skids/rollovers.	3. Serious	C. Could Occur	13	Medium	Road sweeping/grading, water diversion, wheel wash points, restrict HVLV movement in poor conditions.
Ramps - Grades stability	Yes	Steep grades + brake failure or rollovers, especially with HV.	2. Major	C. Could Occur	8	Medium	Design ramps within grade limits, install berms, provide escape/runaway lanes, restrict LV/HV passing on ramps.

APPENDIX 16: Roads & Traffic PHMP

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PRINCIPAL HAZARD MANAGEMENT PLAN **MECHANICAL ENGINEERING** **BADGERYS CREEK QUARRY**



DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	20/08/2024	Review and Updates following Risk assessment reviews	SW
2.	13/08/2025	Review and Updates following Risk assessment reviews	BN
3.	9/09/2025	Review and Format changes to include PHMP & PCP	BN

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1. PURPOSE

To ensure all mobile and fixed plant, including structures, are designed, acquired, operated, maintained, altered, and decommissioned safely, in line with WHS (Mines) Regulation 2022. The plan ensures compliance with OEM specifications, provides a maintenance history, and prevents injury through safe mechanical practices.

It supports the implementation of detailed control measures provided in the **Principal Control Plan (PCP)** for mechanical engineering.

2. SCOPE

Applies to all workers, contractors, designers, manufacturers, importers, and suppliers associated with mechanical plant and structures onsite. Covers lifecycle from procurement through to disposal.

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3. REFERENCES

3.1 Legislation

WHS (Mines) Regulation 2022 – Schedule 1 Part 2 (Plant and Mechanical Engineering Control).

3.2 Codes of Practice

- NSW Code of Practice – *Managing Risks of Plant in the Workplace, Falls at Workplaces, Confined Spaces, Hazardous Manual Tasks*, Hazardous Chemicals (2019), Welding Processes (2019), Electrical Risks (2019)

4. RESPONSIBILITIES

Mine Manager: Approves MECP, oversees compliance.

Plant Workshop Manager (Competent Person): Technical advice, supervision of mechanical engineering controls.

Supervisors: Ensure pre-starts, inspections, and maintenance are carried out.

Operators: Complete pre-starts, report defects, operate within design limits.

Contractors/OEM specialists: Perform specialist or major maintenance.

5. PRINCIPAL RISKS MANAGED

- Unintended operation of plant.
- Uncontrolled release of mechanical energy (hydraulic, pneumatic, stored).
- Catastrophic failure of plant or structures.
- Exposure to airborne contaminants from mechanical systems.
- Fires fuelled by plant/mechanical failures.
- Injuries from lifting, falling objects, confined space entry, or hot work.

6. RISK ASSESSMENT

Broad-brush assessment completed (WHS-CKI-06.023). Risks scored using site risk matrix. Detailed risk registers maintained in Gearbox and IMS-REG-009 Plant Register.

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7. MONITORING

Daily: pre-starts (QR Code system).

Weekly: supervisor inspections.

Monthly: audits of maintenance records (Gearbox).

8. REVIEW & CONTINUOUS IMPROVEMENT

Annual: review by Quarry Manager and competent mechanical manager.

APPENDIX 17: Site Safety Management Plan

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SITE SAFETY MANAGEMENT PLAN



BADGERYS CREEK QUARRY

DOCUMENT HISTORY

Version	Date	Amendment Detail	Initial
1.	7/04/2024	Review	SW
2.	13/08/2025	Review and Updates	BN

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1 INTRODUCTION

The Site Safety Management Plan (SSMP) establishes the overarching framework for health and safety management at Badgerys Creek Quarry – a Tier 2 site operated by Mulgoa Quarries Pty Ltd. It provides direction and structure for all Principal Hazard Management Plans (PHMPs), Principal Control Plans (PCPs), and supporting management system documents to ensure compliance with the Work Health and Safety (Mines and Petroleum Sites) Regulation 2022.

1.1 PURPOSE

The purpose of this SSMP is to define the systems, processes, and responsibilities in place to manage health and safety at the site and to demonstrate compliance with applicable legislative requirements.

1.2 OBJECTIVES

The key objectives of the SSMP are to:

- Provide a structured and auditable framework for managing safety.
- Define the relationship between MQ's Integrated Management System and site-level PHMPs/PCPs.
- Support safe work practices, risk management, and continuous improvement.
- Ensure the safety of all personnel, contractors, and visitors.

1.3 SCOPE

This plan applies to all activities undertaken at Badgerys Creek Quarry, including extraction, filling, rehabilitation, haulage, and maintenance operations.

1.4 RELATIONSHIP TO MQ INTEGRATED MANAGEMENT SYSTEM (IMS)

The SSMP aligns with Mulgoa Quarries' IMS framework, which incorporates WHS, Environmental, and Quality Management requirements across all sites.

1.5 RELATIONSHIP TO PHMPs, PCPs, AND SITE PROCEDURES

This SSMP serves as the umbrella document integrating all PHMPs and PCPs. Each PHMP/PCP details the specific control measures for managing the corresponding principal hazard or risk area.

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2 SITE OVERVIEW

Badgerys Creek Quarry (BCQ) is a Tier 2 mining operation located in Badgerys Creek, New South Wales, managed by Mulgoa Quarries Pty Ltd. The site involves controlled filling, rehabilitation, and associated quarry operations in accordance with approved development and environmental management plans.

Key features include designated fill areas, sediment basins, haul roads, maintenance areas, and environmental control infrastructure.

Project Name: ML 1771 mining and rehabilitation – Badgerys Creek Quarry

Project Location: Martin Road, Badgerys Creek, NSW

Contacts: Refer to Appendix A

3 LEGISLATIVE AND REGULATORY FRAMEWORK

This SSMP has been developed in accordance with the following key legislation and codes:

- Work Health and Safety Act 2011
- Work Health and Safety (Mines and Petroleum Sites) Regulation 2022
- Work Health and Safety Regulation 2017
- NSW Codes of Practice – Mining and Quarrying
- Australian Standards relevant to mine safety and engineering practices

4 HEALTH AND SAFETY POLICY

Mulgoa Quarries Pty Ltd is committed to achieving the highest standards of health and safety across all operations. The objective is zero harm through proactive risk management, effective training, and a culture of safety accountability.

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5 ORGANISATIONAL STRUCTURE AND RESPONSIBILITIES

The organisational structure for Badgerys Creek Quarry ensures clear lines of responsibility and communication for safety management.

Role	Name	Responsibilities
Mine Manager	Blake Newell	Overall responsibility for implementation of the SSMP and compliance with WHS (Mines) Regulation 2022.
Site Supervisor	Damon Sydir	Daily supervision of works, monitoring of controls, and communication of safety requirements to workers and contractors.
HSEQ Team	TBA	Assist with inspections, incident reporting, and maintaining safety documentation.
Operators / Contractors	Various	Comply with MQ procedures, report hazards, and participate in training and toolbox talks.

Refer to Appendix B for detailed organisational chart and role responsibilities

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6 RISK MANAGEMENT

Mulgoa Quarries applies a systematic risk management framework consistent with the WHS (Mines and Petroleum Sites) Regulation 2022 and MQ's IMS. Risks are identified, assessed, and controlled through a hierarchy of control and verified through monitoring and audits.

Principal Hazards and their associated PHMPs/PCPs for Badgerys Creek Quarry are listed below:

Principal Hazard / Risk Area	PHMP Title	PCP Title
Dust and Airborne Contaminants	Dust & Airborne Contaminants PHMP	Dust & Airborne Contaminants PCP
Fire and Explosion	Fire & Explosion PHMP	Fire & Explosion PCP
Ground or Strata Failure	Ground / Strata Failure PHMP	Ground / Strata PCP
Inundation	Inundation PHMP	Inundation PCP
Mechanical Engineering	Mechanical Engineering PHMP	Mechanical Engineering PCP
Roads and Traffic	Roads & Traffic PHMP	Roads & Traffic PCP
Emergency Management	-	Emergency Management PCP

Supporting documents include the Emergency Response Plan, Health Control Plan, and Electrical Engineering Safety Management Plan.

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7 HEALTH AND SAFETY MANAGEMENT SYSTEM

7.1 OVERVIEW OF MQ INTEGRATED MANAGEMENT SYSTEM (IMS)

Mulgoa Quarries' Integrated Management System (IMS) provides a consistent framework for health and safety management across all operations. It aligns with the WHS (Mines and Petroleum Sites) Regulation 2022 and ensures that site-specific procedures and plans operate under a common set of policies, standards and monitoring requirements.

7.2 DOCUMENTED PROCEDURES AND WORK INSTRUCTIONS

All operations at Badgerys Creek Quarry are conducted in accordance with documented procedures and approved Safe Work Method Statements (SWMS).

All high-risk construction or quarrying work is undertaken in accordance with SWMS that comply with Regulation 299 of the WHS Reg 2017. Each SWMS is reviewed before task commencement, signed by all workers involved, and retained in the MQ IMS. Templates and the current SWMS Register are included in **Appendix D**.

7.3 CHANGE MANAGEMENT

Any change to work methods, equipment, materials or organisational structure is managed through the MQ Change Management Procedure. Proposed changes are assessed for risk and approved by the Mine Manager prior to implementation. Records of reviews and authorisations are maintained in the IMS.

7.4 CONSULTATION AND COMMUNICATION

Mulgoa Quarries maintains formal consultation arrangements to ensure effective two-way communication between management, supervisors, workers and contractors.

Regular toolbox talks, monthly safety meetings and representation through the Site Safety Committee enable worker participation in hazard identification, risk control and review of safety measures.

Details of these processes—including meeting frequency, agenda items, and consultative roles—are drawn from the former Section 9 of the SSMP and should be inserted in full here.

7.5 INCIDENT REPORTING AND INVESTIGATION

All incidents, near misses and identified hazards must be reported immediately to the Site Supervisor and recorded within the IMS. Investigations identify root causes and corrective actions in accordance with MQ Procedure WHS-PROC-07.011.

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7.6 CORRECTIVE AND PREVENTIVE ACTIONS

Findings from incidents, audits or inspections are entered into the Corrective Action Register for tracking through to closure. The Mine Manager reviews outstanding actions monthly to ensure timely completion and continuous improvement.

8 TRAINING AND COMPETENCY

All personnel and contractors at Badgerys Creek Quarry must be trained, competent, and authorised to perform their duties. MQ maintains a site-specific Training and Competency Matrix.

8.1 SITE INDUCTION

All workers and visitors must complete the MQ Site Induction prior to entering operational areas. The induction covers site rules, emergency procedures, hazard awareness, and environmental responsibilities.

8.2 ROLE-SPECIFIC TRAINING

Supervisors, plant operators, and maintenance personnel receive additional training relevant to their duties, including verification of competency (VOC) and refresher courses.

8.3 CONTRACTOR AND VISITOR INDUCTION

Contractors and visitors must complete the site induction and provide evidence of competency and insurance prior to undertaking work or visiting operational areas.

8.4 TRAINING RECORDS

Training records are maintained within the MQ IMS and reviewed regularly to ensure compliance with competency standards.

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9 CONTRACTOR AND VISITOR MANAGEMENT

9.1 CONTRACTOR AND SUBCONTRACTOR MANAGEMENT

Mulgoa Quarries engages contractors and subcontractors who are required to meet MQ's health, safety and environmental standards.

Before any engagement, all contractors must complete MQ's pre-qualification process, providing evidence of:

current licences, insurances and competencies,

documented safety management systems, and

relevant Safe Work Method Statements (SWMS) or Job Safety Analyses (JSA).

All subcontractors must attend the MQ Site Induction and comply with site rules, PCPs and PHMPs at all times.

9.2 SUPERVISION AND MONITORING

The Site Supervisor monitors contractor and subcontractor activities daily to verify compliance with safety and environmental requirements.

Non-conformances or breaches are recorded and corrective actions assigned through the IMS Corrective Action Register.

9.3 PERFORMANCE REVIEW

Contractor performance is reviewed periodically and at project completion to ensure ongoing suitability for future work.

Poor performance or repeated breaches may result in removal from site or termination of engagement.

9.4 VISITOR MANAGEMENT

All visitors must report to the site office, complete the visitor induction and remain under escort unless otherwise authorised.

Visitors are required to wear appropriate PPE and comply with instructions from site personnel at all times.

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10 EMERGENCY MANAGEMENT

Emergency management for Badgerys Creek Quarry is governed by the Emergency Management PCP and the site-specific Emergency Response Plan (ERP). These documents outline the preparation, response, and recovery arrangements for foreseeable emergencies.

Key emergency scenarios include fire, explosion, vehicle collision, inundation, medical emergency, and severe weather events. The ERP details site evacuation routes, assembly areas, and communication methods.

10.1 EMERGENCY EQUIPMENT AND RESOURCES

Fire extinguishers, first aid kits, and spill response kits are strategically located and regularly inspected. Emergency contact numbers are displayed in key site locations.

10.2 TRAINING AND DRILLS

Emergency drills are conducted at least annually, or more frequently as required by regulation or operational change. Records of all drills are maintained in the site safety file.

11 MONITORING, MEASUREMENT, AND REVIEW

Monitoring and measurement ensure that controls remain effective and that continuous improvement is achieved.

Key monitoring activities include:

- Daily prestart inspections.
- Weekly site inspections by supervisors.
- Monthly internal audits.
- Periodic third-party audits.
- Environmental and health monitoring (dust, noise, water quality).

11.1 INCIDENT REPORTING AND INVESTIGATION

All incidents, near misses, and hazards are reported immediately to the Site Supervisor and recorded in the MQ IMS. Investigations identify root causes and corrective actions.

11.2 MANAGEMENT REVIEW

The Mine Manager conducts annual management reviews of the SSMP and associated PHMPs/PCPs to ensure ongoing compliance and effectiveness.

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12 CONTINUOUS IMPROVEMENT

Mulgoa Quarries is committed to continuous improvement through ongoing monitoring, consultation, and innovation. Lessons learned from incidents, audits, and regulatory feedback are incorporated into updated systems and procedures.

Opportunities for improvement are documented, tracked, and implemented through the Corrective Action Register within the IMS.

13 REFERENCES

- Work Health and Safety Act 2011
- Work Health and Safety Regulation 2017
- Work Health and Safety (Mines and Petroleum Sites) Regulation 2022
- NSW Codes of Practice for Quarrying, Roads and Traffic, and Excavation Safety
- MQ Integrated Management System Procedures and Forms
- Site-Specific PHMPs and PCPs

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APPENDIX A - Site Contact Details

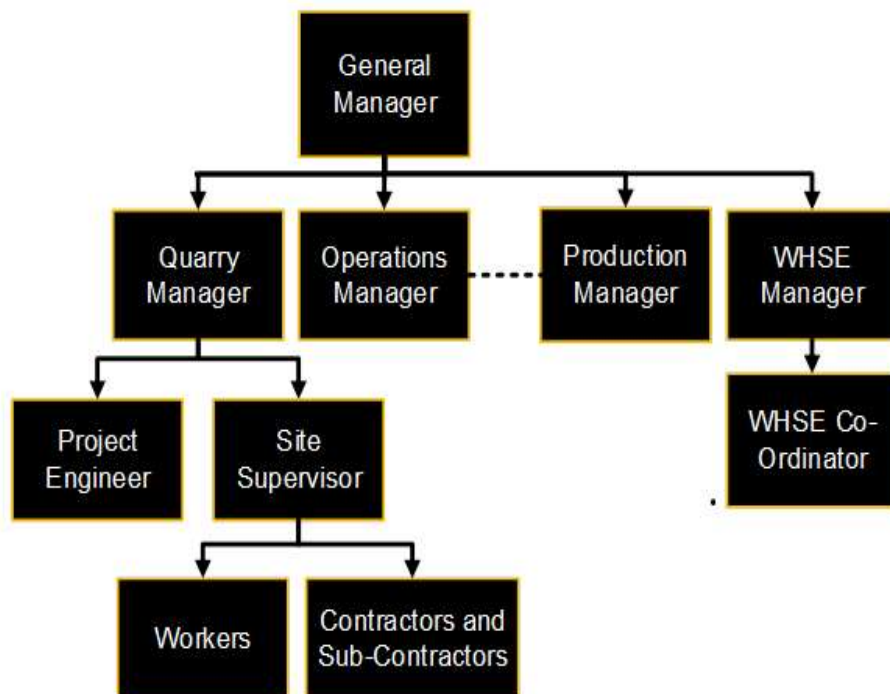
EMERGENCY RESPONSE CONTACT DETAILS

Emergency Response Team Contacts:			
Chief Warden	Damon Sydir	Contact No.:	0428 791 977
Deputy Warden	Darrel Burwick	Contact No.:	0414 942 434
First Aid Officer:	Andrew Carpenter	Contact No.:	0422 097 940
First Aid Officer:	Anthony Kosicki	Contact No.:	0450 500 670
First Aid Officer:	Lachlan Willis	Contact No.:	0476 178 469
Fire Warden:	Mick Ford	Contact No.:	0401 192 621
Fire Warden:	Anthony Mitchel	Contact No.:	0403 290 075
Fire Warden:	Joe Bartlow	Contact No.:	0407 100 733
Quarry Manager	Blake Newell	Contact No.:	0407 794 068
WHS Manager	Shane Wilson	Contact No.:	0418 445 043
WHS Coordinator	Talia Miler	Contact No.:	0448 837 189
Monier Contact	Phil Tutton	Contact No.:	0433 249 340
Operations Manager:	Chris Miler	Contact No.:	0407 457 698
Transport Manager	Jason Yates	Contact No.:	0448 491 546
Workshop Manager	Warren Leahy	Contact No.:	0408 363 833
Emergency Contacts:			
Emergency Services	000 or 112		
MINE SAFETY DEPARTMENT	1300 814 609		
Environmental Protection Authority (EPA)	SYDNEY OFFICE: (02) 9995 5000 POLLUTION LINE: 131 555		

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APPENDIX B – Organisational Chart

Figure B-1



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Table B-1 – Statement of Responsibilities

Responsibility and Authority

Position descriptions & duty statements shall be approved by the General Manager.

Directors (Matthew Wearn)

- The establishment of the policy and the development and achievement of the WHS objectives.
- The implementation of the WHS Management System.
- Allowing adequate time, funding and human resources to implement the safety system; and
- The allocation of the role of the Quarry Manager.

General Manager (Max Sakis)

- Developing and maintaining the WHS Management System.
- Coordinating the preparation of the WHS Management System procedures and instructions as required.
- Management of compliance with WHS legislation, regulation, standards & codes.
- Verifying implementation of changes to the WHS Management System.
- Reviewing and updating the WHS Manual. (Management of WHS design issues).
- Planning & conducting WHS system training and education (Acquiring and communicating of WHS information).
- Verifying implementation of and adherence to these procedures relating to WHS System (Managing the compliance of the system).
- Reporting on the performance of the WHS system to Managing Director for review and as a basis for improvement of the WHS system.
- Consultation and communication of WHS policies with staff & personnel.
- Nominate the project to which the WHS System is to be implemented; and
- Approving the position descriptions and duty statements.
- Coordinating the preparation of the WHS Management System.
- Implement procedures to manage the risk.
- Ensure managers and other duty holders are aware of their responsibilities.
- Ensure that trained, competent personnel are utilised to carry out inspections.
- Monitor compliance with WHS legislation, regulations, standards and codes.
- Verifying implementation of and adherence to these procedures relating to WHS System (managing the compliance of the system).
- Identifying internal audit requirements, and frequency.
- Consultation and communication of WHS policies with staff and personnel.
- Approving the position descriptions and duty statements.

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Mine Manager (Blake Newell)

- Developing and maintaining the WHS Management System.
- Identification of the hazards and assessment of the risks associated with the work, and documentation of the risk control measures to be taken.
- Preparing a site specific WHS Plan.
- Managing compliance with WHS, workplace injury management and workers compensation legislation, regulations, standards and codes, Safe Work Method Statements and the Site Safety Rules.
- Assessing and monitoring the capability of service providers in the supply chain and verifying that they meet WHS requirements.
- Managing the WHS communication and consultation provisions in accordance with the regulatory and other requirements.
- Communicate all Safety, Environmental and quality controls, risks, breaches, non-conformances and improvements to PGH Management.
- identify the WHS training needs of management, supervisors and other personnel for the contract.
- Be available to prevent, prepare for, respond to and provide recovery from incidents.
- Identifying internal audit requirements, & frequency.
- Coordinating/conducting internal WHS audits to verify conformance, raise corrective and preventative action requests (CAR's) and follow-up on the closing out of CAR's.
- Arrange for appropriate training, including refresher training.
- Ensure that materials, equipment, and facilities are available and meet the requirements of this plan.
- Ensure workers and other duty-holders are made aware of their responsibilities.
- Assess hazards and ensure all incidents, accidents, and near misses are reported, acted on and closed out in a timely manner.
- Monitor workers to ensure that agreed controls are implemented and followed.
- Eliminate, as far as is reasonably practical and control the potential for fire or explosion hazards on the site.
- Preparation of site-specific WHS Plan.
- Managing compliance with WHS, workplace injury management, and workers' compensation legislation, regulations, standards and codes, Safe Work Method Statements, and the Site Safety Rules.
- Assessing and monitoring the capability of service providers in the supply chain and verifying that they meet WHS requirements.
- Identify the WHS training needs of management, supervisors and other personnel for the contract.
- Identifying internal audit requirements and frequency.
- Coordinating/conducting internal WHS audits to verify conformance, raise identified corrective actions, and follow up on closing out identified corrective actions.
- Conduct audits as required.
- Assessing subcontractors and Service Providers' ability to comply with WHS requirements; and
- Developing and implementing emergency procedures.

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Site Supervisor (Damon Sydir)

- Identification of the hazards and assessment of the risks associated with the work, and documentation of the risk control measures to be taken.
- Ensuring that the Site Safety Plan is adhered to including safety rules.
- Manage compliance on site of WHS legislation, regulation, standards & codes.
- Recommendations on the review of the site specific WHS Plan.
- Consultation with WH&S workplace committees & work site personnel.
- Displaying and making Site Safety Rules available to personnel on, and visitors to, the work site.
- Verifying (by inspections and tests) that work areas, work methods, materials, plant and equipment comply with safety legislation, regulations, standards and code.
- Quarantining unsafe work areas, materials, plant and equipment.
- Conduct site specific induction & work activity safety training (Safe Work Method Statements, SWMS) and making sure that, before starting work on site, all personnel have attend suitable induction training and refresher courses.
- Reporting incidents and accidents.
- Weekly safe checks & reporting; and
- Be available (both during and outside normal working hours) to prevent, prepare for, respond to and recover from incidents.
- Maintain compliance to the procedures managing the risk of inundation and ground strata failure.
- Ensure workers and other duty holders are made aware of their responsibilities.
- Monitor ground instability following rainfall, seismic events and weather forecasts.
- Take action if conditions or potential threats are not stabilised.
- Implement procedures to manage the risk of personnel being exposed to harmful dust and airborne contaminants.
- Participate in audits as required.
- Manage compliance with WHS legislation, regulations, standards, and codes on site.
- Recommendations on the review of the site-specific WHS Plan.
- Consultation with WH&S workplace committees and work site personnel.
- Displaying and making Site Safety Rules available to personnel and visitors to the work site.
- Verifying (by inspections and tests) that work areas, work methods, materials, plant and equipment comply with safety legislation, regulations, standards and code.
- Conduct site-specific induction and work activity safety training (Safe Work Method Statements, SWMS) and ensure that all personnel attend suitable induction training and refresher courses before starting work on site.
- Reporting incidents and accidents.
- Weekly safety checks and reporting; and
- Be available to prevent, prepare for, respond to and recover from incidents.

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WHS Manager (Shane Wilson) WHS Coordinator (Talia Miler)

- Maintain WHS records at a Corporate Level and Co-ordinate the project to Corporate Level Documentation requirements.
- Collating incident, accident and injury statistics.
- Investigating incidents and accidents and initiating corrective (preventive) actions.
- Displaying and making site safety rules available to personnel on, and visitors to, the work site.
- Managing the WHS communication & Consultation provisions in accordance with the regulatory and other requirements.
- Preparing, maintaining and making accessible the register of hazardous substances.
- Keeping WHS records.
- Maintain first aid stocks.
- Maintain appropriate records of WHS training provided to personnel for the contract.
- Identifying internal audit requirements, & frequency; and
- Manage the acquisition and dissemination of Work health, safety and rehabilitation information to managers, supervisors and the work force.
- Ensure workers and other duty-holders are made aware of their responsibilities.
- Managing compliance with WHS, workplace injury management and workers compensation legislation, regulations, standards and codes, Safe Work Method Statements and the Site Safety Rules.
- Talk to workers about risks, encourage reporting of hazards and ensure all incidents, accidents, and hazards are investigated with implemented corrective actions to eliminate or minimise the risk of recurrence so far as is reasonably practicable.
- Implement and control an inspection regime whereby site inspections are carried out across the site.
- Monitor the risk associated with a withdrawal condition to allow for the early prediction of an emergency situation.
- Ensure that trained, competent personnel are utilised to carry out inspections.
- Develop tools/forms to allow monitoring and reporting of all inspections.
- Train workers in the requirements for inspections and hazard reporting.
- Conduct audits as required.
- Comply with Legislative requirements, ensuring that the risk of inundation and ground strata failure are identified assessed and managed.
- Ensure that suitable resources (including financial and time) are provided to effectively manage hazards.
- Collating incident, accident and injury statistics.
- Investigate incidents, accidents or near misses, and initiate adequate corrective (preventive) actions.
- Displaying and making site safety rules available to personnel on, and visitors to, the work site.
- Manage the WHS communication and consultation provisions in accordance with regulatory and other requirements.
- Keeping WHS records.
- Maintain first aid stocks.

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- Maintain appropriate records of WHS training provided to personnel for the contract.
- Identifying internal audit requirements, and frequency; and
- Manage the acquisition and dissemination of Work health, safety and rehabilitation information to managers, supervisors and the workforce.

Operations Manager (Chris Miler)

- Ensure workers and other duty-holders are made aware of their responsibilities.
- Ensure that adequate human resources are available and meet the requirements of this plan.
- Arrange for appropriate training, including refresher training.
- Injury management programs and rehabilitation of injured personnel; and
- Ensuring all necessary training and advice is provided with regards to the WHS system.

Production Manager (Stephen Eaton)

- Machine Utilisation reporting to Operations manager
- Assess suitability of machinery for task.
- Reporting findings and outcomes to the Operations Manager.
- Train & teach operators about ongoing basic maintenance.
- Assist supervisors in task establishment and staging activities and further develop supervisors' knowledge on running a productive site.
- Review and approve Training procedure/matrix and select operators with Training Officer to be trained
- organise required external small plant hire incl plant hire agreement and compare pricing
- Client Liaison in relation to work methods / constructability and establishment of work zones, traffic and site facilities.

Site Engineer (Matt Baron)

- Keeping WHS Records and distributing relevant WHS information to appropriate parties.
- Providing the organisation's service providers with its site-specific Safety Management Plan and any updates;
- Ensure that the procedures for contacting these people(s) are communicated and clearly advertised on the work site so that all personnel and visitors are aware of the contact names.
- Develop, manage and amend relevant Plans for the mine site.
- Manage procedures to manage the risks within the mine site.
- Ensure that the procedures are communicated and advertised on the work site so that all personnel and visitors know the contact names.
- Develop and preparation of ITPs.

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Workers/ Contractors

- All workers must take reasonable care for his or her own health and safety, and
- take reasonable care that his or her acts or omissions do not adversely affect the health and safety of other persons, and
- comply, so far as the worker is reasonably able, with any reasonable instruction that is given by the person conducting the business or undertaking to allow the person to comply with this Act, and
- co-operate with any reasonable policy or procedure of the person conducting the business or undertaking relating to health or safety at the workplace that has been notified to workers.

Appendix C – Site Safety Rules

Following are instructions and safety requirements related to works on Mulgoa Quarries Pty Ltd projects. These are to be read in conjunction with Mulgoa Quarries Pty Ltd Safety handbook, and as such be followed by all personnel.

General Instructions

A. HIGH VISIBILITY CLOTHING / VESTS Long Pants and Long Sleeve High Vis Clothing must be worn at all times.

B. WORK TIME RESTRICTIONS may be imposed on operations in certain areas.

Monday to Saturday - 7:00am to 6:00pm

C. OVERHEAD POWER LINES Where Overhead Power lines are present on site they should be clearly marked on the site safety diagram and any works in their vicinity should be strictly in accordance with the Legislation and guidelines of that service owner.

D. DRAINS open and piped must not be blocked or fouled. Existing drains to be protected with appropriate erosion controls.

E. PEDESTRIAN SAFETY We have an obligation to ensure the safety of the public and their property at all times. Remember that some Pedestrians may be aged. No work to be carried outside of work zones, except transportation of material to site & removal of debris from site. Where a site is clearly delineated from public access the entry and egress point must clearly indicate “NO PEDESTRIAN ACCESS”

F. OPEN HOLES & TRENCHES must be protected with suitable barriers and bund walls, in which case they must be suitably filled in or covered to the satisfaction of Site Supervisor.

G. GATES must be kept locked when not actually in use.

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- H. **WELDING** must be shielded to protect all workers and Hot Work Permit requirements completed.
 - I. **FALLING OBJECTS** including cutting slag and grinder sparks must not hit workers. They must either be contained, or in the case of public areas, the area must be kept vacant.
 - J. **MATERIAL STOCKPILES** No materials to be stockpiled outside of the work zone areas as highlighted in the site safety diagram
 - K. **CLEANLINESS**. The site must be kept as clean as possible. At the end of each day, it must be reasonably cleaned and made safe. Ensure all cabins to machines to be kept free of dust and clean. Use of mechanical aid is required for cleaning of dust within cabins on machines
 - L. **REPORTING OF ACCIDENTS AND INCIDENTS** All accidents and incidents must be reported immediately. (Refer to Site Contacts Appendix A).
-
1. This site shall comply with the requirements of the WHS Mines Act 2013, WHS Mines Regulation 2022, Work Health Act 2011 & WHS Regulations 2017. Every person on site shall co-operate to ensure compliance with these acts.
 2. It is the responsibility of each person on site to look out for the health and safety of all people on the site including themselves, workmates and visitors.
 3. Alcohol & illegal drugs are prohibited from site. Any person suspected to be under the influence of alcohol and/or illegal drugs will be removed from site.
 4. Effective Barricades, fencing and overhead protection will be used.
 5. All personnel on the work site must attend appropriate refresher training and be involved in regular discussion of work site WHS matters.
 6. Before starting work on site all personnel must attend induction training in health and safety aspects of general construction work.
 7. All construction work must be covered by an applicable SWMS. Before starting work all staff must have been instructed in all aspects of the applicable SWMS. These SWMS must be available on site.
 8. Before Starting work on site all personnel must attend adequate site-specific safety induction training for the particular work activity being undertaken.
 9. All visitors when on the work site must be accompanied by a person who has received the above training.
 10. All persons on site are required to hold a valid White card Certificate. Anyone unable to produce their ticket will be asked to leave site.

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11. Appropriate Personal Protective Equipment (PPE) must be worn at all times. As a minimum this includes steel capped boots, and a high visibility vest. Other PPE must be specified in the SWMS for that task.
12. All entry to, movement on, Passage adjacent to, and exit from, the work site of persons, vehicles and equipment will be controlled in accordance with required procedures.
13. All First aid and emergency procedures will be implemented and documented by the WHS manager.
14. Elevated work – All work at heights will be done in accordance with the relevant legislation, standards, codes and procedures.
15. Certification must be held by any personnel carrying out work with plant or equipment that requires special training under the requirements of the Construction Safety Act (e.g.: crane driver, rigger, dogman, elevated platform operation etc.), and must be able to produce such certification on demand. Toolbox meetings will be held for on-site training.
16. All First Aid facilities and illness/injury and emergency procedures will be clearly identified and used, including reporting illness/ injury incidents.
17. All accidents and near misses on site must be reported immediately to the site Supervisor and recorded in the site incident register.
18. All injuries requiring first aid treatment are to be reported to the site first aider. All details of the incident and treatment are to be recorded in the site accident register.
19. An appropriate fire extinguisher must be on hand for each welding set or oxyacetylene set on site. Welding and oxyacetylene sets must be fitted with blow back arrestors.
20. Excavation work will be done in accordance with the relevant legislation, standards and codes and procedures.
21. A hazardous materials and dangerous goods register will be kept on site for all hazardous substances brought onto the work site. All Hazardous substances and dangerous goods must be used, stored and handled in accordance with the requirements.
22. Where there is a danger of a person falling more than 2 metres, including openings in floors, stairs, lift shafts, excavations, trenches and edges of suspended floor slabs, preventative measures shall be installed in the form of handrails, fencing or safety harnesses to prevent persons falling. All such handrails and fencing shall not be removed unless approved by the site Supervisor and will be replaced immediately on completion of work in the areas.
23. Dropping or throwing down of materials or gear from a height is prohibited except where suitable means have been installed to catch, control or hold such items.

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24. Trenches and excavations deeper than 1.5 metres shall be shored and/or strutted, battered or benched as required by regulations. The sides are not to be loaded and shall be kept clear of loose materials etc. Safe access and egress for workers shall be provided and maintained. All stockpiles that do not require benching will be constructed in accordance with the SWMS and mining regulations.
25. Eye protection shall be provided by MQ for persons carrying out welding or similar processes and screens/shields provided to protect the eyes of others.
26. All plant and gear brought on site shall be adequate and to appropriate requirements. It shall be of sound material and kept in a good serviceable condition. Unsafe equipment must be suitably identified and either made safe or removed from site.
27. Blades, buckets, hook ends etc. on dozers, front end loaders, backhoes, excavators, cranes etc. must be lowered when not in use.
28. Keys to all vehicular type plant, compressors and fixed cranes etc. must be removed during non-working hours or when left unattended.
29. All vehicles on site shall be operated at a safe speed and used in a safe manner.
30. All couplings and connections in compressed air lines to be “pin locked”.
31. All workplaces are to be adequately ventilated so as to render harmless fumes and dust that may be injurious to health.
32. Unsafe acts are required to be reported to the Site Supervisor without delay.
33. All work areas must be kept clean and all “trip hazards” in public access areas must be removed, barricaded or battered with road base or similar.
34. Persons who breach these rules may be removed from site without warning.
35. All personnel must comply with Mulgoa Quarries Pty Ltd Smoking Policy
36. All first aid facilities and illness/injury and emergency procedures will be clearly identified and used, including reporting illness/injury and accidents.
37. All Visitors, staff and personnel must observe and adhere to the stipulated signage and barricades erected on and around the construction site.

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Appendix D – Site Safety diagrams

Site Safety diagrams



Site Layout Map



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Appendix E - Summary of Principal Hazard Management Plans (PHMPs) and Principal Control Plans (PCPs)

Principal Hazard / Risk Area	PHMP Title	PCP Title
Dust and Airborne Contaminants	Dust & Airborne Contaminants PHMP	Dust & Airborne Contaminants PCP
Fire and Explosion	Fire & Explosion PHMP	Fire & Explosion PCP
Ground or Strata Failure	Ground / Strata Failure PHMP	Ground / Strata PCP
Inundation	Inundation PHMP	Inundation PCP
Mechanical Engineering	Mechanical Engineering PHMP	Mechanical Engineering PCP
Roads and Traffic	Roads & Traffic PHMP	Roads & Traffic PCP
Emergency Management	-	Emergency Management PCP
Health Control	Health Control Plan	
Electrical Engineering	Electrical Engineering Safety Management Plan	
Emergency Response	Emergency Response Plan	

Appendix F – Safe Work Method Statements (SWMS)

SAFE WORK METHOD STATEMENT NO	DESCRIPTION
WHS-Frm-06.008-59	Principle Mining Hazards Risk Assessment
WHS-Frm-06.008-1a	Dozer Design, Risk assessment
WHS-Frm-06.008-2a	Dump Truck Design, Risk Assessment
WHS-Frm-06.008-3a	Excavator Design, Risk assessment
WHS-Frm-06.008-5a	Grader Design, Risk Assessment
WHS-Frm-06.008-6a	Front End Loader Design, Risk Assessment
WHS-Frm-06.008-7a	Compactor Design, Risk assessment
WHS-Frm-06.008-31	740 Water Truck Design, Risk assessment
WHS-Frm-06.008-10a	Stockpile Building
WHS-Frm-06.008-15a	Dust Control, Risk assessment
WHS-Frm-06.008-23a	Site Establishment
WHS-Frm-06.008-24a	Dewatering
WHS-Frm-06.008-42	Unexpected Finds

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Appendix E – Site Establishment Checklist

Project: CSR Badgerys Creek Rehabilitation		
1.	Access to the job (TMP??)	Yes / No / NA
2.	Set up site facilities (building sheds, etc.)	Yes / No / NA
3.	Consult with authority bodies (Police, etc.)	Yes / No / NA
4.	Services connection (telephone, electrical, power)	Yes / No / NA
5.	Meeting with personnel giving a clear understanding of what is to be carried out.	Yes / No / NA
6.	Delivery of materials	Yes / No / NA
7.	Security of materials, compounds or fences	Yes / No / NA
8.	Public notification / community involvement	Yes / No / NA
9.	Environmental protection issue fixed	Yes / No / NA
10.	Overhead wires confirmed	Yes / No / NA
11.	Establish survey reference marks	Yes / No / NA
12.	Plant security	Yes / No / NA
13.	WHS implications	Yes / No / NA
14.	Services located - safety aspects and procedures	Yes / No / NA
15.	General safety	Yes / No / NA
16.	Schedule of materials arrivals	Yes / No / NA
17.	Incident Management requirements satisfied	Yes / No / NA
18.	Other:	Yes / No / NA

Supervisor:

Signature:

Date:

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Appendix F – TOOLBOX Meeting Form

Site & Venue: _____

Date & Time: _____

Present: _____

Apologies: _____

Distribution: _____

Acceptance of Previous Meeting Minutes: YES / NO

Outstanding Business

Item Number	Subject/Action required	Action by who	Proposed Action Date	Action complete (Y/N)

New Business REQUIRING ACTION

Item Number	Subject/Action required	Action by who	Proposed Action Date	Action complete (Y/N)

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Appendix G – Site Safety Checklist

Project: CSR Badgerys Creek Rehabilitation					
Description		INITIAL	Y	N	COMMENTS
Induction	- Have workers been inducted by Mulgoa Quarries Pty Ltd? - Have daily instructions been given?				
Displays	- Is Safety Policy displayed? - Are Emergency Evacuation Procedures displayed? - Have Safety Rules been made available?				
Hazards	Have hazards been identified?				
PPE Is Personal Protective Equipment (PPE) being used?	- Safety Boots - Eye protection - Ear plugs - Safety Vests - Gloves - Respiratory protection - Specialised protection - Other				
Site Access	Is access and egress being maintained?				
Plant & Equipment:	- Are Pre-Start Checks being undertaken? - Is plant & equipment serviced? - Is plant being secured at completion of workday? - Are operator's licences being checked? - Are the operator's capabilities being assessed?				
Manual Handling	- Is lifting being done safely? - Is digging being done safely? - Is concrete pouring being done safely? - Is jackhammering being done safely?				
Demolition	- Have signs been displayed? - Are workers wearing appropriate PPE including hardhats? - Are other people adequately protected? - Are fire-extinguishers on site? - Is demolition occurring in a manner consistent with construction? - Are materials being lowered properly				

Supervisor:

Signature:

Date:

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Appendix H – Environmental Checklist

Project: CSR Badgerys Creek Rehabilitation					
11. DESCRIPTION	Y	N	N/A	COMMENTS	INITIALS
1. Is site kept clean?					
2. Are bins available for rubbish?					
3. Are site facilities clean?					
4. Are geotextile fences installed?					
5. Are geotextile fences maintained?					
6. Are stormwater grates protected?					
7. Are exposed areas restored?					
8. Is demolition material watered?					
9. Is traffic being confined to approved areas?					
10. Is works occurring outside approved hours?					
11. Are emission levels on plant and equipment within legal limits?					
12. Are plant and equipment noise levels acceptable?					
13. Is plant and equipment properly serviced?					
14. Is appropriate noise reduction equipment in place? e.g. on jackhammers.					
15. Are chemical and fuels stored in approved area?					
16. Has there been any chemical or fuel spill?					
17. Are recyclable products being used?					
18. Are recyclable products stockpiled for re-use?					
19. Are halogens and hydrocarbon products being used?					
Comment:					

Supervisor:

Signature:

Date:

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Appendix I –Site Inspection Checklist

Note: This checklist is to be used in line with WHS-MSP-06.003

Persons conducting Inspection: _____

Site: _____ Area: _____ Date: _____

Inspection Item	Safe to Use	Comment, Yes / No	Tagged Yes / No	Action Taken
Building structure & infrastructure				E.g. Complete hazard form Conduct toolbox meeting
Control panels, switches & leads				
Mobile plant				
Lifting gear				
Electrical cords				
Fire extinguisher				
Pressure Equipment				
Lighting/noise				
Dust				
Housekeeping				
Floors, Surfaces, Stairs, Walkways & Platforms				
Safety Signage, Exits & Safety Devices				
PPE				
MSDS's, DG's, Haz Subs & Spills				
Oil Shed				

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Appendix K – Safety Contact Checklist

Note: This checklist is to be used in line with WHS-MSP-06.003

Persons conducting safety contact: _____ Date: _____

Site: _____ Area: _____ Task: _____

MSP / SWMS demonstrated: _____

Note: Comments must be documented in this checklist (i.e. **no ticks**)

Observation	Safe / At Risk behaviour observed	Action Taken
Work well Planned (including other activities been conducted), including for unexpected situations?		E.g. Procedure reviewed Retraining required
Body positioning and manual handling planned and executed to minimise risk?		
Energy sources isolated & locked to ensure no unexpected release of energy?		
Correct equipment used to minimise risk and fit for duty?		
Forms completed (work permits / confined space / induction / etc)?		
MSP or SWMS accurate, effective and current?		
Should there be an MSP or SOP for this procedure?		

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Contractors are conducting their operations in line with their SWMS and the Mulgoa CSMP?		
Competence of the person conducting the activity safely (in accord with procedure)?		
Supervision sufficient?		
Further information, instruction or training required?		
What expressed feedback did you offer the safety contact?		
Other:		

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Appendix L – Induction Procedures

Mulgoa Quarries Personnel: 1) Sign in as per Sites Requirements 2) Site Specific Induction and Daily Pre-Start by Mulgoa Quarries 3) Understand scopes of work. 4) Read, understand and sign onto the SSMP 5) Inducted onto relevant SWMS 6) Read, understand and sign the current VMP 7) Complete a site familiarisation drive
Subcontractor: 1) Sign in as per Sites Requirements 2) Site Specific Induction and Daily Pre-Start by Mulgoa Quarries 3) Understand scopes of work. 4) Read, understand and sign onto the SSMP 5) Inducted onto relevant SWMS 6) Read, understand and sign the current VMP 7) Complete a site familiarisation drive
Visitor: 1) Sign in as per Sites Requirements 2) Site Specific Induction by Mulgoa Quarries 3) Visitor to be escorted by Mulgoa Quarries Personnel

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Appendix M – Site Visitor LOGBOOK

All persons who visit the site in connection with the above works must register on this Site Visit Log. “All Persons” includes sub-contractors workers, delivery drivers, vehicles and persons associated with inspections or supervision.

Site Visitors Log will be made available on site at the site office or Digital QR Code will be provided.

Appendix N – SDS INDEX

The following hazardous substances are stored or used on this project Relevant Safety Data Sheets are attached.

SHEET	DISCRIPTION OF PRODUCT	REVISED DATE	DATE TO REVIEW
1	Mobil Delvac 1 ATF	22/03/2021	22/03/2026
2	Mobil Delvac extended coolant	13/05/2020	13/05/2025
3	Mobil trans HD 30	20/06/2021	20/06/2026
4	Mobil Delvac XHP ESP 10W-40	22/03/2021	22/03/2026
5	Mobil DTE 26 Ultra	22/03/2021	22/03/2026
6	Mobil Multipurpose ATF	02/05/2021	02/05/2026
7	Mobil Delvac MX 15W-40	22/03/2021	22/03/2026
8	Mobil Fluid 424	22/03/2021	22/03/2026
9	Mobilube HD Plus 85W-140	22/03/2021	22/03/2026
10	Mobiltrans HD 10W	20/06/2021	20/06/2026
11	Texxon Red Grease	21/08/2020	21/08/2026
12	Vinyl Gloss	11/2020	11/2025
13	Window Cleaner	15/05/2020	15/05/2025
23			
24			
25			

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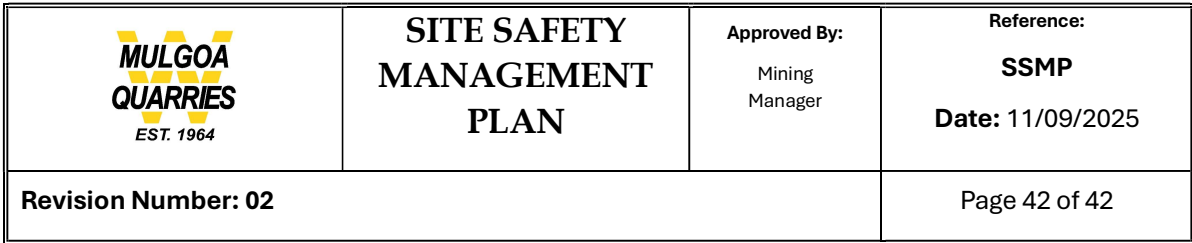
Appendix O – Methodology Change Process Checklist

 METHODOLOGY CHANGE PROCESS CHECKLIST CELEBRATING 60 YEARS		
Worker's Name:	Company:	
Site:	Date:	
If there is a NO answer on the below Checklist, THE PROPOSED CHANGE IS NOT TO BE IMPLIMENTED.		
Task		YES/NO
1. Is there a requirement to change the methodology of works?		
2. Have the necessary Stakeholders been consulted that a change is required in the methodology of works		
3. Have the necessary stakeholders been presented updated methodology		
4. Does the VMP require updating and sent out for approval		
5. Are the approvals in place to commence the change in work methodology		
6. Have the necessary consultants been made aware of the change and been provided the opportunity to have necessary input		
7. Have the necessary SWMS and Risk Assessments been updated and approved by Stakeholders		
8. Have the necessary ToolBox Talks and SWMS been explained to the operators on site		
9. Have the daily ground and strata checklist been completed prior to starting works		
I hereby declare that the Information provided above is true and correct:		
Worker Name:	Signature:	Date:
Confirmed By:		
Supervisors Name :	Signature:	Date:

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Appendix P – Mulgoa Quarries Pre-Commencement Checklist

 SITE PRE-COMMENCEMENT CHECKLIST CELEBRATING 60 YEARS		
Worker's Name:	Company:	
Site:	Date:	
If there is a NO answer on the below Checklist, THE EMPLOYEE/SUBCONTRACTOR IS NOT ALLOWED TO COMMENCE		
Task		YES/NO
1. Induction		
Do you have a current MULGOA QUARRIES Company Induction? If Yes, Date:		
*MULGOA QUARRIES Induction have a validity of 2 years, if Induction date is past 2 years, Complete a new Induction. (Mulgoa Quarries Employees Only)		
Did you complete a MULGOA QUARRIES Site specific Induction & Signoff?		
Did you complete a MULGOA QUARRIES Induction Quiz?		
Have you completed a Client Induction and Tool Box (if applicable)		
2. Operations		
Are you wearing the required PPE listed in your induction?		
Are you Certified / Licensed / Competent to undertake Scope of Works?		
- VOC's/SOA's, Certificates etc. submitted		
Have you reviewed, understood and signed the Project Risk assessment / Principal Mining Hazard Risk Assessment?		
Have you reviewed and signed Plant Design, Modification and Multiple Risk Assessment SWMS (Plant Operation SWMS) for your designated Plant?		
Have you reviewed and signed the Project specific Plant Design, Modification and Multiple Risk Assessment SWMS (Task specific SWMS) for Scope of Works?		
Were the Hazards identified and explained to the Employee/Subcontractor?		
Have you reviewed and understood the unexpected finds protocol?		
3. Toolboxes		
Are you aware that you are required to complete a Daily Machine Pre-Start (Daily Plant Inspection)?		
Are you aware that you are required to participate in a Daily Project Pre-Start Meeting?		
Are you aware that you are required to participate in regular Tool Box Meetings?		
Have you Reviewed and Signed the latest TMP / VMP?		
Have you Completed a Site familiarisation?		
4. Emergency Procedure		
Do you know where the Emergency Assembly Area is?		
Have you been trained in the Site Emergency Evacuation Procedure and the location of the Emergency Response Plan?		
Have you been informed to preserve the site until told otherwise In the case of any Injury or Incident?		
Have you been informed to raise all hazards and environmental on the site with your Supervisor		
I hereby declare that the Information provided above is		
Worker Name:	Signature:	Date:
Confirmed By:		
Supervisors Name :	Signature:	Date:



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APPENDIX 18: Consultation Toolbox & Evacuation Drill Sign on

Mulgoa Quarries Weekly Toolbox Meeting Minutes	Issue date: 26/02/2024	WHS-Frm-03.002A
	review date: Version 3	Authorised by: M. Sarkis

Site & Venue:

BADGERS CREEK QUARRY

Date & Time:

13-8-2025 - 8:45AM - 9:30AM

Present:

As Attached

Apologies:

Distribution:

Acceptance of Previous Meeting Minutes:

YES

General Business FOR DISCUSSION

Item Number	Subject/Action required	Action by who	Proposed Action Date	Action complete (Y/N)
1.	CONSULTATION WITH ALL WORKERS ON REVISION 2 OF THE PRINCIPAL HAZARDS RISK MATRIX	All	13-8-25	Yes
2.	CONSULTATION WITH ALL WORKERS ON REVISION 2 OF THE PRINCIPAL HAZARDS MANAGEMENT PLAN	All	13-8-25	Yes
3.	CONSULTATION WITH ALL WORKERS ON REVISION 2 OF THE PRINCIPAL CONTROL PLAN	All	13-8-25	Yes.
4.	ALL WORKERS TRAINED ON INDUSTRIAL HEPA FITTER VACUUM CLEANER FOR CLEANING MOBILE PLANT CABINS	All	13-8-25	Yes.
5.	ROLES & RESPONSIBILITIES FOR SUPERVISORS, LEADING HANDS, WHS TEAM & OPERATORS EXPLAINED & DISCUSSED IN DETAIL FROM THE PRINCIPAL CONTROL PLAN.	All	13-8-25	Yes.

General Business FOR DISCUSSION

Subject	Discussed (Y/N)	Comments
EDUCATION: Review one section of the CSMP		
Monthly Statistics (Accidents, Incidents and Hazards)		
Housekeeping and Safety Inspection		
Other Matters		

Mulgoa Quarries Weekly Toolbox Meeting Minutes	Issue date: 26/02/2024	WHS-Frm-03.002A
	review date: Version 3	Authorised by: M. Sarkis

Site & Venue: BADGERYS CREEK QUARRY (BCQ)
 Date & Time: 6-8-2025 - 9:00AM
 Present: As Attached
 Apologies: _____
 Distribution: _____
 Acceptance of Previous Meeting Minutes:

General Business FOR DISCUSSION

Item Number	Subject/Action required	Action by who	Proposed Action Date	Action complete (Y/N)
1.	NOTICE TO ALL WORKERS THAT BCQ HAS BEEN TIERED TO A TIER 2 QUARRY BY THE NSW RESOURCE REGULATORS.	ALL	6-8-25	YES
2.	CONSULTATION WITH WORKERS FOR THE PRINCIPAL HAZARD RISK MATRIX - WENT THROUGH HAZARDS PREVIOUSLY IDENTIFIED -	ALL	6-8-25	YES
3.	NEW HAZARDS IDENTIFIED - HAMAKING ROCK, SCRAPPING WALLS & FLOOR OF PITS, RIPPING, POZI TRACK SWEEPING DRIVEWAY, LABOUR TASK			
4.	MAINTENANCE WORKERS WORKING ON BREAK DOWNS.	ALL	6-8-25	YES
4.	REVIEW/CONSULTATION OF THE PRINCIPAL HAZARD MANAGEMENT PLAN. - DUST & AIR-	ALL	6-8-25	YES
	SOURCE CONTAMINANTS - NEW HAZARDS & CONTROL TABLE TO BE UPDATED	BLAKE	6-8-25	YES

General Business FOR DISCUSSION

Subject	Discussed (Y/N)	Comments
EDUCATION: Review one section of the CSMP		
Monthly Statistics (Accidents, Incidents and Hazards)		
Housekeeping and Safety Inspection		
Other Matters		

