Open Cut Mining and Surface Extraction			
Business Name:		ABN:	
Business Address:			
Contact Person:	Phone:	Email:	

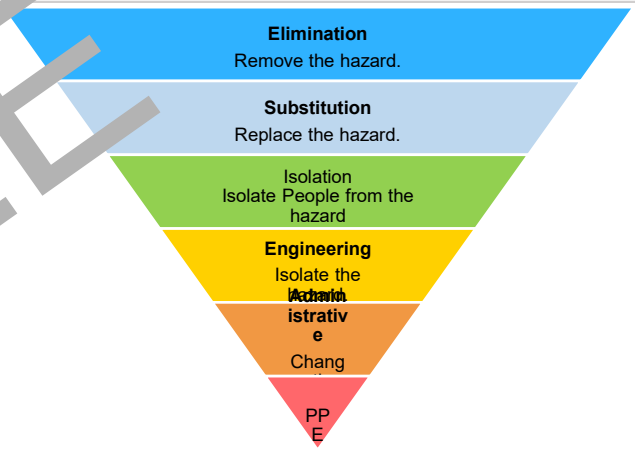
THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE PROJECT		
Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.		
Full Name:		
Signature:	Title:	Date:

CLIENT OR PRINCIPAL CONTRACTOR DETAILS	
Client:	SCOPE OF WORKS
Project Name:	
Project Address:	
Project Manager:	
Contact Phone:	
Date Risk Assessment supplied to Project Manager:	

RISK MATRIX

LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC	SCORE	ACTION
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE		
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Rev before work
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACU	2M MO RATE	Ensure control measures in place.
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 H	1L LOW	Monitor and keep records.

HIERARCHY OF CONTROLS



Risk Rating & Required Action:

4A	Stop work. The risk is intolerable. E inate the hazar redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or hi er-level authorisati is required.
3H	Review and approve additional c rols b ask arts. Senior supervisor sign-off needed.
2M	Ensure all nominated controls are in ace and effe ive. Proceed with caution; monitor conditions.
1L	Proceed, following standard operating procedures Monitor and keep records.

Consequence Scale:

Consequence	People (injury/illness)	Project / Assets	Compliance / Reputation
Catastrophic	Fatality or permanent total disability	project shutdown	Significant regulator intervention; criminal prosecution
Major	Serious injury/illness (hospital > 5 days)	critical delay	Improvement notice; major media coverage
Moderate	Medical-treatment injury; lost-time > 1 day	moderate delay	Minor breach; adverse client comment
Minor	First-aid only, no lost time	negligible delay	Isolated non-conformance
Insignificant	No injury	no schedule impact	Deviation caught and corrected on site

Notes on Hierarchy of Controls:
Remember to apply controls in the preferred order shown by the coloured pyramid:

1. **Eliminate**
2. Substitute
3. Isolate
4. Engineering
5. Administrative
6. PPE

Always document **why** a lower-order control is accepted if elimination or substitution is not reasonably practicable.

aligned with Safe Work Australia's Managing the risk of fatigue at work *(2023) and ISO 45001:2018 clauses 6–8.*

JOB STEP	POTENTIAL HAZARDS	IR	CONTROL MEASURES	RR
SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
1. WHS Governance, Leadership and Legal Compliance	• Inadequate understanding or application of WHS Act 2011, WHS Regulations and Mining Regulations by senior leaders • Lack of clear WHS policy, objectives and due diligence processes for officers • Insufficient allocation of resources to manage WHS risks in open-cut and surface operations • Poor integration of WHS into corporate decision-making, production planning and cost control • No systematic review of legal changes affecting open cut mining and surface extraction • Failure to consult, cooperate and coordinate with PCBUs sharing duties on site (contractors, JV partners, utilities) • Inadequate incident reporting, investigation and corrective action systems • Lack of clear acco tabilities and role descriptions for W s responsibilities at all levels	4A	• Establish a WHS Management System alig d with HS Act 2011, ISO 45001 and relevant mining codes of practice • Define and document office due diligence proce es, incl g regular WHS performance reviews and legal compliance audits • Develop a site W P endo d by the Board and senior leadership, visibly communicated across all mining and face oper ons • Implement a al regist and sched eview process to capture and act on changes in WHS and minin islatio and c es of practice • Integ te HS ris nd critical control status into monthly executive and production planning meetings • Forma se c sultati cooperation and coordination arrangements with all PCBUs on site, including interface greements a a shared hazard registers • M tai a robu incident management procedure including notifiable incidents, root cause analysis and verific of corrective actions • ssign and document WHS responsibilities and KPIs within position descriptions, annual performance re ws and contract conditions	3H
2. Mine Planning, Design and Geotechnical Management	• Deficient life-of-mine and short-ter mine design leading to unsafe high all, low wall and pit geometry • Inadequate geotechnical investigation and monitoring for open-cut walls, waste dumps and surface mining areas • Insufficient factor of safety in pit slope design and high wall scaling plans • Poor integration of hydrology, groundwater and surface water management into pit design • Lack of design controls for in-pit crushing and conveying (IPCC) locations and haul road interfaces	4A	• Implement a formal mine planning and design governance framework, with defined design criteria and approval authorities for all pit stages • Engage competent geotechnical engineers to complete and periodically review geotechnical assessments, including open-cut slope stability, waste rock dumps and surface mining benches • Develop and enforce pit design standards (bench height, berm width, catch berms, batter angles, stand-off distances) and document these in design guidelines • Establish geotechnical monitoring systems (survey prisms, radar, extensometers) with trigger action response plans for highwalls and critical slopes • Integrate hydrogeological modelling into mine design to manage pore pressure, groundwater inflows and surface run-off impacts on slope stability • Define and control IPCC and in-pit infrastructure locations through engineering design reviews and risk assessments for pit wall interaction	2M

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	• Inadequate geotechnical hazard communication between technical and operations teams • Uncontrolled changes (drift) from approved mine design due to production pressure		• Adopt a change management procedure for any deviation from approved designs, requiring geotechnical sign-off and operational risk review • Conduct regular cross-discipline geotechnical review meetings involving planning, geology, drill and blast, and production teams to communicate hazards and control requirements	
3. Mine Access Control and Physical Barriers	• Uncontrolled public or unauthorised access to mining and surface extraction areas • Inadequate physical barriers around open pits, highwalls, voids, in-pit crushing stations and hazardous zones • Poor delineation between active mining areas, waste rock dumps, ROM pads and public/third-party corridors • Inconsistent lock-out of decommissioned pits, worked-out areas and legacy voids • Insufficient signage and lighting around perimeter fencing and exclusion zones • Lack of documented site security procedures and enforcement	3H	• Develop a Mine Access and Security Plan that defines fenced boundaries, controlled entry points and authorised access levels • Install engineered physical barriers (bunds, berms, fencing, gates) around open-cut pit perimeters, highwalls, in-pit crushing and conveying systems, and other major drop-offs • Implement formal exclusion zones for active mining faces, high wall scaling, blasting zones and IPCC maintenance areas with barricades and visual delineation • Standardise signage in accordance with Australian Standards for restricted access, fall hazards, vehicle crossings and mine operations • Establish procedures for issuing and controlling access passes, including induction requirements and supervision levels for visitors and contractors • Conduct regular inspections of physical barriers, bunds, fencing and signage, with defect reporting and rectification timeframes • Integrate perimeter security and access control requirements into emergency response and interface arrangements with neighbouring land users • Maintain lighting standards for access roads, entries, security checkpoints and critical barrier locations used during night operations	2M
4. Contractor and Workforce Management for Mining Activities	• Inadequate prequalification of mining and drilling contractors engaged in open-cut and surface extraction • Misalignment between principal contractor WHS expectations and contractor systems • Insufficient competence verification for supervisors, mining operators, drillers and shotfirers • Poor onboarding, induction and site-specific training for new workers and contractors • Gaps in supervision, especially during night shift or remote surface operations • Confusing lines of authority for mixed workgroups (e.g. mine owner, contract miner, drilling contractor)	4A	[redacted]	2M

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			[redacted]	
5. Highwall, Bench and Slope Stability Management	• Unstable highwalls and low walls leading to rockfalls, bench failures or large-scale slope collapse • Inadequate high wall scaling procedures for removing loose material from bench faces • Uncontrolled access to high-risk wall toes, crest areas and undercut zones • Insufficient monitoring of slope movement, cracks and water seepage in benches and highwalls • Poor integration of drill and blast design with geotechnical requirements, resulting in over-steep or damaged walls	4A	[redacted]	2M
6. Mine Drilling and Blasting Systems	• Inadequate control of drill patterns, burden and spacing imp[redacted]wall stability and fragmen[redacted]ion • Failure of explos[redacted]e storage, transport and handling syste[redacted]to r[redacted]egu[redacted]ory requirements • Deficient misfire management an[redacted] blast exclusion protocols • Poor coordination between drilling, blasting, high wall scaling and extraction operations • Inadequate dust, vibration and flyrock control measures affecting workers, public or infrastructure • Insufficient training and authorisation of drilling and blasting personnel	4A	[redacted]	2M
7. In-Pit Crushing and Conveying (IPCC) and Materials Handling	• Poorly designed or controlled interaction between mobile plant and fixed IPCC infrastructure	4A	[redacted]	2M

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	• Uncontrolled material hang-ups, blockages and overloads in crushers and conveyors • Inadequate guarding, interlocking and emergency stops on in-pit crushing and conveying systems • Insufficient lockout–tagout–try-out (LOTOTO) systems for maintenance and clearing blockages • Uncontrolled spillage creating fall, entrapment and mobile plant hazards in pits and on surface conveyors • Inadequate training of operators and maintainers in IPCC-specific risks		[redacted]	
8. Vehicle, Mobile Plant and Traffic Management	• Uncontrolled interaction between heavy mobile equipment, light vehicles, pedestrians and fixed plant in open-cut pits and surface areas • Inadequate haul road design, signag lighting and maintenance for open-cut operations • Poor systems for p start inspections, defect reporting ar maintenance planning for mobil lant • Insufficient vehicle selection and specification controls for mining and surface extraction conditions • Fatigue and distraction management failures for operators engaged in long shifts and remote operations	4A	[redacted]	2M
9. Extraction, Loading and Waste Rock Management Systems	• Uncontrolled extraction sequencing leading to unstable benches, highwalls and pit floors • Poorly planned waste rock placement causing dump instability, spontaneous combustion or water contamination	4A	[redacted]	2M

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	• Ineffective separation of ore and waste streams causing stockpile instability or contamination • Inadequate design and management of surface mining strips, spoil piles and rehabilitation areas • Insufficient controls for dozer push, edge work and tipping at dumps, stockpiles and void edges		[redacted]	
10. Occupational Health, Dust, Noise and Vibration Management	• Inadequate control of respirable crystalline silica, coal dust or other mineral dusts from open-cut and surface mining activities • Excessive noise exposure from drilli blasting, crushing, conveying and mini equipment • Vibration impacts f n blasting and heavy machinery workers, neighbouring com nities a infrastructure • Poor management of diesel partic te matter in pits and enclosed area • Insufficient health surveillance and exposure monitoring for mining personnel	3H	[redacted]	2M
11. Emergency Preparedness, Response and High-Risk Events	• Inadequate emergency response capability for pit wall failure, in-pit crushing incidents, vehicle collisions, fires or medical emergencies • Poor planning and communication for blasting, high wall scaling and other high-risk activities	3H	[redacted]	2M

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	• Insufficient training and drills for emergency scenarios relevant to open-cut and surface extraction operations • Inadequate emergency access and egress routes from pits, waste dumps and remote surface mining areas • Lack of integration between site emergency plans and external emergency services and regulators		[redacted]	
12. Environmental, Water and Surface Interaction Management	• Uncontrolled surface water inflows into pits, causing slope instability, equipment bogging and flooding of in-pit crushing and conveying systems • Inadequate stormwater and sediment management around waste rock dumps and surface mining areas • Failure to manage acid-forming or reactive waste rock impacting water quality and worker health • Poor control of reh[illegible]ilitation works interacting with ac[illegible]e mining activities • Insufficient plannin[illegible]treme weather, including intense rainfall, he[illegible] and bushfire conditions		[redacted]	2M
13. Training, Communication and Change Management	• Inadequate WHS training specific to open-cut mining, surface extraction and IPCC operations • Poor communication of changes to mine plans, highwall conditions, traffic routes or emergency procedures • Lack of systematic management of organisational, procedural or equipment changes • Insufficient feedback loops for workers to report hazards, near misses and safety improvement ideas	3H	[redacted]	2M

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14. Monitoring, Audit and Continuous Improvement	• Failure to detect degradation of critical controls across mining activities, IPCC, drilling and extraction operations • Inadequate site inspections and audits leading to normalisation of deviance from standards • Poor data quality or analysis regarding incidents, hazards and leading safety indicators • Lack of systematic review of WHS management system effectiveness for open-cut and surface operations	3H	[redacted]	1L

EMERGENCY RESPONSE – CALL 000 FOR EMERGENCIES

Ensure to have an Emergency Management Plan in place as well as adequate numbers of trained first aid staff with easy access to fully stocked first aid kits, rescue equipment, material safety data sheets, adequate access to emergency communication equipment and fire-fighting equipment suitable for all classes of fire and ignition sources.

LEGISLATIVE REFERENCES

RELEVANT LEGISLATION AND CODES OF PRACTICE. DELETE THE LEGISLATIVE REFERENCES FOR ANY STATE THAT ARE NOT APPLICABLE

Queensland & Australian Capital Territory
Work Health and Safety Act 2011
Work Health and Safety Regulations 2011
Legislation QLD: https://www.worksafe.qld.gov.au/laws-and-compliance/work-health-and-safety-laws
Codes of Practice QLD: https://www.worksafe.qld.gov.au/laws-and-compliance/codes-of-practice
Legislation ACT: https://www.worksafe.act.gov.au/laws-and-compliance/acts-and-regulations
Codes of Practice ACT: https://www.worksafe.act.gov.au/laws-and-compliance/codes-of-practice

New South Wales
Work Health and Safety Act 2011
Work Health and Safety Regulations 2025
Legislation NSW: https://www.safework.nsw.gov.au/legal-obligations/legislation
Codes of Practice NSW: https://www.safework.nsw.gov.au/resource-library/list-of-codes-of-practice

Northern Territory
Work Health and Safety (National Uniform Legislation) Act 2011
Work Health and Safety (National Uniform Legislation) Regulations 2011
Legislation NT: https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws
Codes of Practice NT: https://worksafe.nt.gov.au/forms-and-resources/codes-of-practice

South Australia
Work Health and Safety Act 2012 (SA)
Work Health and Safety Regulations 2012 (SA)
Legislation for SA: https://www.safework.sa.gov.au/resources/legislation
Codes of Practice for SA: https://www.safework.sa.gov.au/workplaces/codes-of-practice#COPs

Tasmania
Work Health and Safety Act 2012
Work Health and Safety (Transitional and Consequential Provisions) Act 2012
Work Health and Safety Regulations 2012
Work Health and Safety (Transitional) Regulations 2012
Legislation for TAS: https://worksafe.tas.gov.au/topics/laws-and-compliance/acts-and-regulations
Codes of Practice for TAS: https://worksafe.tas.gov.au/topics/laws-and-compliance/codes-of-practice

Details of permits, licenses or access required by regulatory bodies (add or delete as required):

- Permits from local council
- Authorisation to commence work
- Any required documents.

Victoria
Occupational Health and Safety Act 2004
Occupational Health and Safety Regulations 2017
Legislation VIC: https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations
Codes of Practice VIC: https://www.worksafe.vic.gov.au/compliance-codes-and-codes-practice

Western Australia
Work Health and Safety Act 2020
Work Health and Safety Regulations 2022
Legislation Western Australia: https://www.commerce.wa.gov.au/worksafe/legislation
Codes of Practice WA: https://www.commerce.wa.gov.au/worksafe/codes-practice

Safe Work Australia Links
Law and Regulation (All States): https://www.safeworkaustralia.gov.au/law-and-regulation
Model Codes of Practice: https://www.safeworkaustralia.gov.au/resources-publications/model-codes-of-practice

Model Codes of Practice

- Managing noise and preventing hearing loss at work
- Confined spaces
- Labelling of workplace hazardous chemicals
- Managing risks of hazardous chemicals in the workplace
- Welding processes
- First aid in the workplace
- Managing the risk of falls at workplaces
- Hazardous manual tasks
- Managing the risk of falls in housing construction
- Managing electrical risks in the workplace
- Demolition work
- Excavation work
- Work health and safety consultation, cooperation and coordination
- Managing the work environment and facilities
- How to manage work health and safety risks
- Managing risks of plant in the workplace
- Construction work