

**Plant Maintenance Repair and Commissioning**

Business Name:		ABN:
Business Address:		
Contact Person:	Phone:	Email:

**THIS RISK ASSESSMENT IS APPROVED BY THE PCBU ON THIS 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	HIERARCHY OF CONTROLS	
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE			<b>Elimination</b> Remove the hazard.	
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED	<b>Substitution</b> Replace the hazard.	
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Review before work starts.	Isolation Isolate People from the hazard	
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	2M MODERATE	Ensure control measures in place.	<b>Engineering</b> Isolate the hazard	
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 HIGH	1L LOW	Monitor and keep records.	<b>Administrative</b> Change	
								<b>PPE</b>	

  

Risk Rating & Required Action:	
<b>4A</b>	Stop work. The risk is intolerable. Eliminate the hazard or redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or higher-level authorisation is required.
<b>3H</b>	Review and approve additional controls before task starts. Senior supervisor sign-off needed.
<b>2M</b>	Ensure all nominated controls are in place and effective. Proceed with caution; monitor conditions.
<b>1L</b>	Proceed, following standard operating procedures. Monitor and keep records.

  

Consequence Scale:			
Consequence	People (injury/illness)	Project / Assets	Compliance / Reputation
<b>Catastrophic</b>	Fatality or permanent total disability	project shutdown	Significant regulator intervention; criminal prosecution
<b>Major</b>	Serious injury/illness (hospital > 5 days)	critical delay	Improvement notice; major media coverage
<b>Moderate</b>	Medical-treatment injury; lost-time > 1 day	moderate delay	Minor breach; adverse client comment
<b>Minor</b>	First-aid only, no lost time	negligible delay	Isolated non-conformance
<b>Insignificant</b>	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. Governance, WHS Leadership and PCBU Duties	<ul style="list-style-type: none"> <li>Lack of clear WHS governance structure for plant maintenance, repair and commissioning activities</li> <li>PCBU and Officers not adequately discharging due diligence obligations under WHS Act 2011</li> <li>Fragmented responsibilities between maintenance, operations, projects and contractors leading to gaps in controls</li> <li>Inadequate resourcing (time, budget, competent personnel) for safe maintenance and commissioning work</li> <li>Poor integration of WHS requirements into asset management and project decision-making</li> <li>Failure to consider WHS implications when approving plant changes, upgrades or decommissioning</li> <li>Insufficient oversight of high-risk activities such as making alterations on live plant or working on mobile plant</li> <li>Lack of formal review following incidents, near misses or major plant failures</li> </ul>	4A	<ul style="list-style-type: none"> <li>Establish a documented WHS governance framework that clearly defines PCBU, Officer and Worker duties for plant maintenance, repair and commissioning in line with WHS Act 2011 and WHS Regulation</li> <li>Assign a senior manager as the accountable owner of the plant maintenance and commissioning safety management system, with regular reporting to the executive</li> <li>Implement an organisational WHS Plan that specifically addresses plant lifecycle risks, including design, procurement, maintenance, alteration, and decommissioning</li> <li>Ensure Officers exercise due diligence by receiving regular WHS performance reports, conducting site walks and verifying adequacy of resources for maintenance and commissioning activities</li> <li>Integrate WHS requirements into asset management plans, capital approval processes and project governance charters</li> <li>Require formal WHS risk assessments and plant safety in design reviews for all significant modifications, new plant, commissioning and decommissioning projects</li> <li>Mandate root cause analysis and corrective action tracking for all serious incidents, near misses and significant equipment failures related to plant</li> <li>Schedule periodic internal and external audits of the plant safety management system, including governance effectiveness and legislative compliance</li> </ul>	3H
2. Plant Design, Procurement and Modification Control	<ul style="list-style-type: none"> <li>Procurement of plant that is not inherently safe or not fit for intended use</li> <li>Failure to obtain or consider designer, manufacturer and supplier safety information as required by WHS Act 2011</li> <li>Inadequate consideration of maintenance access, guarding, isolation points and cleaning requirements at design stage</li> <li>Uncontrolled or undocumented modifications to complex machinery, fittings or safety systems</li> <li>Incompatibility between new equipment and existing plant, increasing risk of system failures</li> </ul>	4A	<ul style="list-style-type: none"> <li>Implement a formal plant procurement and design review procedure requiring safety in design assessments in accordance with WHS Act 2011 and relevant Codes of Practice</li> <li>Require designers and suppliers to provide detailed documentation on hazards, control measures, maintenance regimes and residual risks for all new and modified plant</li> <li>Adopt engineering design standards that mandate safe access for maintenance, fixed guarding, lockable isolation points, lifting points and safe cleaning arrangements</li> <li>Establish a Management of Change (MoC) procedure for any plant modifications, including risk assessment, engineering review, authorisation and as-built documentation updates</li> <li>Standardise specifications for critical components (e.g. guards, hydraulic hoses, high-pressure grease systems, safety interlocks) and prohibit unapproved substitutions</li> <li>Ensure design reviews explicitly address cleaning complex machinery, disassembly and reassembly, dismantling heavy machinery, and removal/installation of machine guards and rollers</li> <li>Include commissioning plans in project design, with defined test regimes, hold points, and safe work methodologies for live plant interactions</li> </ul>	2M

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	<ul style="list-style-type: none"> <li>Design of plant that makes safe greasing sequences, inspection of hydraulic lifts, or cleaning complex machinery impractical</li> <li>Use of non-standard or unverified components during repairs and plant upgrades</li> <li>Failure to consider commissioning risks (e.g. making alterations on live plant, plant commissioning activities) during project planning</li> </ul>		<ul style="list-style-type: none"> <li>Maintain an up-to-date plant register that records design data, modifications, and safety features for all significant items of plant and machinery</li> </ul>	
3. Plant Risk Management and WHS Documentation System	<ul style="list-style-type: none"> <li>Absence of formal, current plant risk assessments covering maintenance, repair and commissioning activities</li> <li>Risk assessments focused only on operational production tasks, not on maintenance system and management risks</li> <li>Outdated or inconsistent Safe Work Procedures, SWMS and isolation procedures for complex machinery</li> <li>Failure to control risks associated with high-pressure grease injection, hydraulic lifts, dismantling and reassembly of heavy machinery</li> <li>Lack of documented procedures for which formal SWMS are required for high-risk construction-type maintenance tasks</li> <li>Poor version control of risk assessments and procedures leading to conflicting documents in circulation</li> </ul>	4	<ul style="list-style-type: none"> <li>Establish a documented WHS risk management procedure consistent with the WHS Regulation, requiring systematic identification, assessment and control of plant-related risks</li> <li>Maintain high-level plant risk assessments for each asset type that specifically address maintenance, repair, re-assembly, greasing sequences and commissioning activities</li> <li>Develop and maintain a controlled library of Safe Work Procedures and SWMS for high-risk maintenance tasks (e.g. working on hydraulic lifts, high-pressure grease injection, dismantling heavy machinery)</li> <li>Introduce a document control system with designated owners, review cycles, approval workflows and electronic access to current WHS documents at point of use</li> <li>Define triggers and thresholds for when a detailed SWMS or Job Safety Analysis is mandatory (e.g. live plant alterations, confined spaces, work at height, mobile plant maintenance)</li> <li>Conduct scheduled reviews of plant risk assessments following incidents, modifications, significant process changes, or at least every two to three years</li> <li>Ensure risk assessments include system level controls (engineering, administrative) and are not limited to PPE and behavioural measures</li> <li>Provide training to supervisors and maintenance planners on how to conduct and use WHS risk assessments in planning and authorising work</li> </ul>	2M
4. Isolation, Lockout/Tagout and Energy Control Systems	<ul style="list-style-type: none"> <li>Inadequate lockout/tagout (LOTO) procedures for complex or integrated plant systems</li> <li>Unknown or poorly identified energy sources including hydraulic, pneumatic, stored mechanical, electrical and process energy</li> <li>Bypassing or defeating isolation points during fault finding or plant commissioning activities</li> </ul>	4A	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	2M

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	<ul style="list-style-type: none"> <li>Working on live plant or making alterations on a live plant without formal risk assessment and approval</li> <li>Inconsistent application of isolation procedures across business units and contractors</li> <li>Inadequate verification of isolation prior to dismantling plant, changing machine fittings or conducting inspection of machinery for faults</li> <li>Failure to control stored energy during tasks such as fitting and removing rollers, inspecting hydraulic lifts or disassembling machinery</li> </ul>		[REDACTED]	
5. Maintenance Planning, Scheduling and Work Management	<ul style="list-style-type: none"> <li>Reactive, breakdown-driven maintenance creating time pressure and unsafe decision-making</li> <li>Poor planning of major shutdowns and plant commissioning activities leading to congestion, conflicting tasks and supervision gaps</li> <li>Inadequate allowance in schedules for safe isolation, disassembly, cleaning and testing of equipment</li> <li>Failure to integrate WHS risk controls into Computerised Maintenance Management System (CMMS) work orders</li> <li>Unclear prioritisation of safety-critical defects and overdue inspection findings</li> <li>Maintenance on mobile plant scheduled without considering interaction risks with production and traffic flows</li> </ul>	3H	[REDACTED]	2M
6. Competency, Training and Supervision of Maintenance Personnel	<ul style="list-style-type: none"> <li>Maintenance workers, technicians and engineers not formally assessed as competent for complex plant systems</li> <li>Inadequate training on specific hazards such as high-pressure grease injection,</li> </ul>	3H	[REDACTED]	2M

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	<p>hydraulic systems, and heavy machinery dismantling</p> <ul style="list-style-type: none"> <li>• Reliance on informal on-the-job learning without structured assessment or verification of understanding</li> <li>• Supervisors not adequately trained in WHS obligations, risk assessment and permit to work processes</li> <li>• Inadequate competency checks for contractors engaged in plant commissioning, repair and installation activities</li> <li>• Insufficient supervision during high-risk activities such as installing and removing machine guards, adjusting complex machinery or dealing with faults in live systems</li> </ul>		[REDACTED]	
7. Contractor and Third-Party Management	<ul style="list-style-type: none"> <li>• Contractors performing maintenance, equipment assembly and installation, or commissioning without full understanding of site-specific risks</li> <li>• Poor coordination between contractor and in-house teams during maintenance on mobile plant and complex machinery</li> <li>• Gaps between contractor safety systems and the PCBU's WHS controls</li> <li>• Inadequate review of contractor SWMS for high-risk construction-type maintenance work</li> <li>• Contractor assumptions that their existing procedures cover site-specific hazards such as plant guarding arrangements or live plant alterations</li> <li>• Insufficient monitoring of contractor performance and adherence to site WHS requirements</li> </ul>	3H	[REDACTED]	2M

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8. Plant Guarding, Interlocks and Safety Systems Management	<ul style="list-style-type: none"> <li>Machine guards removed, not replaced, or incorrectly installed after maintenance or cleaning</li> <li>Interlocks and safety systems bypassed for fault finding, adjustments or plant commissioning activities</li> <li>Inadequate design and documentation for installing and removing machine guards, including those on mobile plant</li> <li>Failure to maintain or test emergency stops, interlocks, light curtains and other protective devices</li> <li>Uncontrolled changes to control system software affecting safety system reliability</li> <li>Lack of clear criteria for temporary removal of guards during tasks such as greasing sequences or inspection of machinery for faults</li> </ul>	4A	[REDACTED]	2M
9. High-Risk Maintenance Activities (Hydraulic, High-Pressure and Heavy Components)	<ul style="list-style-type: none"> <li>Uncontrolled release of high-pressure fluids during greasing maintenance or high-pressure grease injection</li> <li>Crush and impact from failure of hydraulic lifts, jacks or supports during inspection or repair</li> <li>Manual handling and mechanical lifting risks when dismantling heavy machinery, fitting and removing rollers or disassembling plant components</li> <li>Failure to depressurise, chock or support heavy moving parts before work commences</li> <li>Inadequate design and management of lifting points and lifting gear used in maintenance and installation tasks</li> <li>Competency gaps in recognising and controlling stored energy in complex hydraulic and pneumatic systems</li> </ul>	4A	[REDACTED]	2M

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			[REDACTED]	
10. Cleaning, Housekeeping and Post-Maintenance Restoration	<ul style="list-style-type: none"> <li>• Residual contamination, product build-up or cleaning agents left on plant after cleaning complex machinery or post-operation cleaning</li> <li>• Slips, trips and falls due to poor housekeeping around maintenance and dismantling work areas</li> <li>• Plant returned to service with components not fully reassembled or incorrectly adjusted following cleaning or dismantling</li> <li>• Failure to account for foreign objects, tools and rags left inside plant after cleaning and reassembly</li> <li>• Inadequate systems for verifying that guards, labels and safety devices are reinstated after cleaning or maintenance</li> <li>• Exposure to hazardous substances during cleaning processes without appropriate controls</li> </ul>	3H	[REDACTED]	1L
11. Mobile Plant, Access and Traffic Interface Management	<ul style="list-style-type: none"> <li>• Maintenance on mobile plant conducted in uncontrolled areas exposing workers to vehicle movements and collision risks</li> <li>• Inadequate separation of pedestrians, maintenance personnel and operational traffic in workshops and plant areas</li> <li>• Unsafe access arrangements to elevated or awkward plant locations for inspection, greasing or repair</li> <li>• Use of inappropriate or poorly maintained access equipment (ladders, platforms, EWP) during maintenance and commissioning</li> </ul>	3H	[REDACTED]	2M

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	<ul style="list-style-type: none"> <li>Lack of coordination between operations and maintenance regarding mobile plant availability and isolation</li> <li>Poor visibility and communication in yards, loading areas and workshops where mobile plant is maintained</li> </ul>		[REDACTED]	
12. Permit to Work, Authorisation and Change Management	<ul style="list-style-type: none"> <li>High-risk maintenance tasks (e.g. confined space entry, hot work, live testing, work at height) conducted without permits</li> <li>Unclear authority levels for approving complex repair or commissioning activities on critical plant</li> <li>Uncontrolled temporary changes or bypasses to safety systems during fault-finding and commissioning</li> <li>Poor communication of active permits, isolations and temporary changes across shifts and work groups</li> <li>Failure to review and close out permit properly, resulting in equipment started in an unsafe condition</li> <li>Inadequate management of change for design alterations, modifications and introduction of new plant</li> </ul>	4A	[REDACTED]	2M
13. Emergency Preparedness, Incident Response and First Aid	<ul style="list-style-type: none"> <li>Delayed or ineffective response to incidents during plant repair, cleaning or commissioning activities</li> <li>Lack of specific emergency procedures for high-risk exposures such as hydraulic injection injuries or entrapment during machinery adjustment</li> <li>Inadequate first aid coverage in maintenance workshops and remote plant locations</li> <li>Poor communication systems for summoning assistance during</li> </ul>	3H	[REDACTED]	1L

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	maintenance on mobile plant or in isolated areas • Failure to capture and learn from near misses and minor injuries associated with plant maintenance • Emergency equipment (fire extinguishers, spill kits, rescue gear) not readily available or maintained in relevant plant areas		[REDACTED]	
14. Consultation, Worker Engagement and WHS Culture	• Maintenance and commissioning workers not consulted on practical plant safety issues and changes to systems of work • Low reporting of hazards, near misses or concerns due to poor safety culture or fear of reprisal • Insufficient involvement of Health and Safety Representatives (HSRs) in plant risk assessments and change processes • Breakdown in communication between shifts leading to repeated faults, unsafe short-cuts and work around practices • Limited feedback loops to assess outcomes of risk assessments, audits or incident investigations • Cultural acceptance of working on live plant or bypassing guards to maintain production	3	[REDACTED]	2M

**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>

**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>

**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-codes-of-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>

**Northern Territory**

Work Health and Safety (National Uniform Legislation) Act 2011  
 Work Health and Safety (National Uniform Legislation) Regulation 2011  
 Legislation NT: <https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws>  
 Codes of Practice NT: <https://worksafe.nt.gov.au/laws-and-compliance/codes-of-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>

**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>

**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

**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.