

Install Hydraulic Systems

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			Elimination Remove the hazard.	
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED	Substitution 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.	Engineering Isolate the hazard	
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 HIGH	1L LOW	Monitor and keep records.	Administrative Change	
								PPE	

Risk Rating & Required Action:	
4A	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.
3H	Review and approve additional controls before task starts. Senior supervisor sign-off needed.
2M	Ensure all nominated controls are in place and effective. 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. Governance, Legal Compliance and WHS Duties	<ul style="list-style-type: none"> Lack of clear allocation of WHS duties and due diligence obligations for officers in relation to hydraulic system installation projects Failure to integrate WHS Act 2011 and WHS Regulation requirements into hydraulic design, procurement and installation decision-making Inadequate consultation with workers and health and safety representatives (HSRs) on hydraulic installation risks and control measures No documented WHS objectives, performance indicators or reporting specific to hydraulic system risks (pressure, stored energy, interaction with plant, hazardous chemicals) Poor change management processes when introducing new hydraulic technologies, fluids, control systems or contractors 	High	<ul style="list-style-type: none"> Establish and document a WHS governance framework that explicitly references duties under the WHS Act 2011 for hydraulic system design, installation and commissioning, including officer due diligence requirements Define and record roles, responsibilities and authorities for PCBUs, officers, supervisors, project managers, engineers, procurement staff and contractors involved in hydraulic installations Embed WHS legislative and Australian Standard requirements (e.g. AS/NZS 4024 series, AS 2671/AS 3791 or relevant hydraulic standards) into corporate engineering and project governance procedures Implement a consultation procedure that requires engagement with workers, HSRs and relevant contractors during planning, design, review, risk assessment and post-installation review of hydraulic systems Introduce a formal management of change (MoC) process for new or modified hydraulic systems, ensuring risk assessments, engineering sign-offs and training updates are completed prior to commissioning Develop WHS performance indicators specific to hydraulic installations (e.g. number of pressure-related incidents, near misses, isolation breaches, leak events) and report these regularly to senior management Ensure WHS policies mandate the principle of hierarchy of control, requiring elimination and engineering controls to be prioritised for hydraulic hazards before administrative controls and PPE 	Medium
2. Design, Engineering and Technical Integrity of Hydraulic Systems	<ul style="list-style-type: none"> Hydraulic system design not completed or verified by a competent engineer, leading to unsafe operating pressures, inadequate factor of safety or incorrect component selection Insufficient consideration of stored energy, sudden release of pressure and failure modes (hose bursts, component ejection, component rupture) in design documentation No standardised engineering specifications for hoses, fittings, accumulators, valves and guards leading to incompatible or sub-standard components Lack of integration between hydraulic design and other plant systems (electrical, mechanical, control systems), increasing risk of unintended movement or energisation Inadequate provision for access, isolation points, test points, pressure 	High	<ul style="list-style-type: none"> Implement an engineering design standard that mandates all hydraulic system designs and significant modifications be completed or verified by a suitably qualified and experienced engineer Adopt corporate technical specifications for hydraulic components (pressure ratings, temperature ranges, burst factors, compatible fluids, hose and fitting standards) aligned with relevant Australian Standards and OEM requirements Require formal design risk assessments (including failure mode and effects analysis where appropriate) for all new or modified hydraulic systems, with documented consideration of stored energy and catastrophic failure scenarios Mandate inclusion of clearly identified isolation points, pressure relief valves, test ports, lockable valves and bleed-down arrangements in the design to support safe installation, maintenance and emergency response Ensure engineering review processes verify compatibility between hydraulic, mechanical, electrical and control systems, including interlocks, emergency stop logic and guarding interfaces Standardise requirements for access, working clearances, lifting points, hose routing, protective sleeving and guarding to reduce the risk of line damage and exposure to moving or pressurised components Require complete as-built documentation (schematics, pressure settings, component lists, layout drawings, control logic descriptions) to be finalised, reviewed and stored in a controlled document management system prior to handover 	Medium

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	<p>relief, guarding and emergency shut-down within the system design</p> <ul style="list-style-type: none"> Design documentation insufficient for safe installation, testing, commissioning and future modification (e.g. missing circuit diagrams, pressure ratings, layout drawings) 			
3. Procurement, Contractor Management and Supply Chain	<ul style="list-style-type: none"> Selection of suppliers or installers based primarily on cost without adequate assessment of WHS capability and hydraulic competency Procurement of non-compliant, low-quality or counterfeit hydraulic components not suited to system pressure or environmental conditions Lack of clear WHS specifications in contracts for hydraulic installation work (e.g. isolation standards, testing requirements, verification processes) Inadequate prequalification and monitoring of contractors performing hydraulic installation, testing or commissioning Poor communication of site-specific WHS expectations and procedures to suppliers and installers No system to verify that supplied components match the approved design, ratings and materials 	High	<ul style="list-style-type: none"> Develop a procurement procedure that incorporates WHS criteria and technical compliance requirements for all hydraulic system components and installation services Implement a formal contractor prequalification process that assesses hydraulic installation competencies, licensing, incident history, safety management systems and references Include detailed WHS requirements in purchase orders and contracts, covering isolation standards, pressure testing protocols, competency requirements, supervision expectations and incident reporting obligations Require certificates of conformity, test reports and OEM documentation for critical hydraulic components (e.g. actuators, pressure vessels, hoses, fittings, valves) and verify against design specifications Establish a receiving inspection process to confirm that delivered components match specified pressure ratings, sizes, materials and approvals prior to installation Mandate pre-start meetings or pre-award briefings with contractors to communicate site WHS rules, hazardous energy policies, permit requirements and emergency procedures for hydraulic work Include performance clauses for contractors allowing for audits, corrective actions, and termination where WHS requirements for hydraulic installations are not met 	Medium
4. Competency, Training and Authorisation	<ul style="list-style-type: none"> Workers or contractors installing or commissioning hydraulic systems without formal training or verified competency Supervisors lacking technical understanding of hydraulic hazards, leading to inadequate oversight and risk controls No defined competency requirements or authorisation process for personnel who design, install, test, commission or isolate hydraulic systems Insufficient training on specific hydraulic system designs, pressure 	High	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	Medium

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	<ul style="list-style-type: none"> ratings, fluids used and emergency procedures • Informal, on-the-job learning without structured assessment, leading to inconsistent practices and unsafe shortcuts 		[REDACTED]	
5. Planning, Project Management and Coordination	<ul style="list-style-type: none"> • Hydraulic installation works planned in isolation from other trades, causing simultaneous operations and conflicting activities in the same work area • Compressed project schedules encouraging work-arounds, bypassing of isolation requirements or incomplete testing • Insufficient pre-installation risk assessment and work planning leading to unclear scope, responsibilities and interfaces between contractors • Lack of documented installation methodology, acceptance criteria and hold points for inspections and tests • Inadequate communication of changes in design, schedule or work sequencing to site personnel and contractors 	High	[REDACTED]	Medium
6. Isolation, Energy Control and Permit-to-Work Systems	<ul style="list-style-type: none"> • Absence of a formal isolation and lock-out tag-out (LOTO) procedure specific to hydraulic energy • Inconsistent identification and labelling of isolation points and pressure sources across sites or systems • No requirement for permits for high-risk hydraulic tasks such as pressure testing, accumulator work or work on live systems • Failure to verify zero energy state prior to installation modifications or connection of new components • Reliance on verbal instructions rather than documented isolation plans for complex hydraulic installations 	High	[REDACTED]	Medium

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			[REDACTED]	
7. Pressure Testing, Commissioning and Verification	<ul style="list-style-type: none"> Inadequately controlled pressure testing leading to hose or fitting failure, component rupture or ejection of parts No standardised pressure testing procedures, acceptance criteria or sign-off requirements Commissioning undertaken without systematic verification of critical safety functions (pressure relief, interlocks, emergency stops, alarms) Lack of segregation or barriers between pressure testing areas and other work zones Inadequate recording of test results, system settings and commissioning changes for future reference 	High	[REDACTED]	Medium
8. Documentation, Information and Labelling	<ul style="list-style-type: none"> Incomplete or inaccurate documentation for installed systems, making safe operation and maintenance difficult Lack of clear labelling of circuits, pressure zones, isolation points and emergency controls Operational manuals not updated to reflect as-built hydraulic configurations or later modifications Workers and contractors unable to readily access current hydraulic schematics, risk assessments and procedures Confusing or missing safety signage around high-pressure areas or stored energy components 	Medium	[REDACTED]	Low

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9. Maintenance, Inspection and Change Management Post-Installation	<ul style="list-style-type: none"> Lack of scheduled inspections and preventative maintenance for hydraulic systems leading to degradation, leaks or unexpected failures Uncontrolled modifications or repairs (e.g. replacement hoses with incorrect ratings) compromising system integrity No systematic monitoring for recurring faults, near misses or minor leaks that indicate underlying design or maintenance issues Maintenance tasks undertaken without reference to current schematics, isolation procedures or risk controls Inadequate management of ageing assets, including deterioration of hoses, seals, accumulators and fittings 	High	[REDACTED]	Medium
10. Emergency Preparedness, Incident Management and Health Monitoring	<ul style="list-style-type: none"> Workers and supervisors unprepared to respond to hydraulic failures, high-pressure injection injuries or sudden releases of energy No specific emergency procedures addressing hydraulic ruptures, spills, or loss of control of connected plant Inadequate first aid capability and medical escalation pathways for hydraulic-related injuries (including fluid injection injuries requiring specialist treatment) Under-reporting of hydraulic near misses, minor leaks or unsafe conditions, limiting organisational learning No health monitoring or exposure assessment where hazardous hydraulic fluids or mists may present a risk to workers 	Medium	[REDACTED]	Low

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.