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Water Pump			
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	SCOPE OF WORKS
Client:	
Project Name:	
Project Address:	
Project Manager:	
Contact Phone:	
Date Risk Assessment supplied to Project Manager:	

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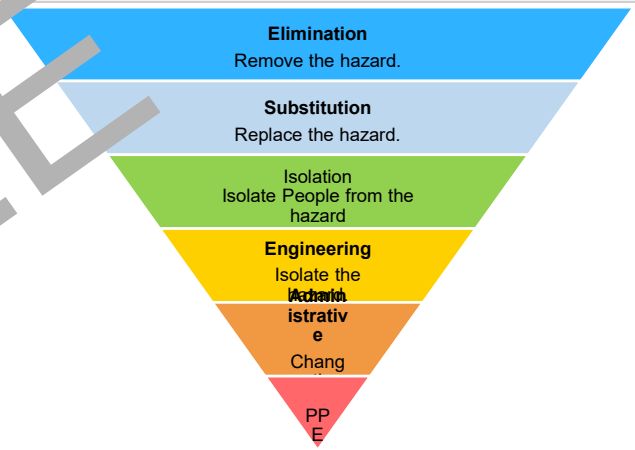
RISK MATRIX

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



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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.*

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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 Responsibilities	• Lack of clear allocation of WHS duties for procurement, installation, operation and maintenance of diaphragm, vacuum and petrol-driven water pumps and sewer pump stations • Inadequate understanding of WHS Act 2011 and WHS Regulations duties relating to plant, hazardous chemicals, confined spaces and high-risk construction work • Absence of a documented WHS management system addressing pump system lifecycle risks (design, installation, operation, overhaul, decommissioning) • Poor integration of WHS considerations into business planning, contracts and project management for plumbing pump-valve and pump system installations • No formal process to identify, assess and review risks for new or modified pump systems, including vacuum pump and petrol-powered pumps • Inadequate consultation with workers and Health and Safety Representatives (HSRs) on pump-related hazards and control measures • Failure to ensure principal contractor / PCBU interfaces are clearly defined where multiple PCBUs work on pump installations or sewer pump station works	High	• Establish and maintain a documented WHS management system aligned to WHS Act 2011, WHS Regulations and relevant Australian Standards (e.g. AS 4024 series for plant safety, AS/NZS 3000 for electrical installations, relevant plumbing standards) • Define and document WHS roles, responsibilities and accountability for managers, supervisors, project managers, maintenance coordinators and operators involved with water pumps, vacuum pumps, sewer pump stations and petrol-driven pumps • Implement a formal WHS legal register capturing key legislative and code of practice obligations relevant to pump systems (plant, hazardous chemicals, confined spaces, noise, manual handling, high-risk construction work, electrical safety), with scheduled review • Integrate WHS risk assessment into project governance for all new or changed pump installations, overhauls and system upgrades, requiring documented management approval before work proceeds • Develop and enforce a WHS consultation procedure ensuring workers, HSRs and contractors are involved in the identification of hazards and the development and review of procedures for pump operation, overhaul and maintenance • Include WHS requirements and clear allocation of duties in contracts with designers, installers, pump overhaul providers and maintenance contractors, including expectations for risk assessments, safe work procedures and competency • Schedule annual management reviews of pump-related WHS performance, including incident trends, audit findings and implementation status of corrective actions • Ensure due diligence obligations for officers are met through regular WHS briefings and access to competent WHS advice in relation to pump system risks	Medium
2. Design, Procurement and Engineering Controls for Pump Systems	• Selection of inappropriate pump type (e.g. petrol water pump instead of electric in partially enclosed spaces) leading to fume, fire or explosion risks • Design of diaphragm, vacuum or heavy-duty pumps without appropriate guarding, isolation valves, non-return valves or pressure relief devices • Pump systems procured without adequate noise, vibration and ergonomic	High	• Implement a formal engineering and procurement standard for all pump systems requiring risk-based selection of pump type (diaphragm, vacuum, centrifugal, petrol, electric) suitable for the work environment, media and duty cycle • Engage competent engineers or pump specialists to design and review pump systems, including sewer pump stations, ensuring compliance with relevant Australian Standards and local authority requirements • Require designers to demonstrate application of the hierarchy of control at design stage (e.g. selection of intrinsically safer pump types, minimising manual handling, eliminating confined space requirement where reasonably practicable)	Medium

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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
	considerations, increasing long-term health risks • Failure to consider maintainability in design, leading to need for unsafe access (e.g. awkward access for sewer pump station chain replacement, valve operation or motor removal) • Inadequate specification or rating of hoses, pipework, anchors and supports for the operating pressures, temperatures and media (including sewage and corrosive fluids) • Incompatible materials or components used in plumbing pump-valve installations leading to leaks, environmental contamination or structural failure • Lack of integration between hydraulic / mechanical design and electrical controls (e.g. emergency stop, interlocks, level alarms, auto cut-outs / dry run protection) • Procurement of pumps without clear documentation, manual[illegible]icates of conformity and safe[illegible]information from the manufacturer [illegible] supplier		• Include design requirements for fixed guarding of rotating and moving parts, clearly labelled isolation valves, bleed points, pressure relief valves and backflow prevention devices • Specify noise and vibration performance criteria in [illegible]ocurement requirements and require suppliers to provide noise and vibration data with pumps • Mandate design for safe access and egre[illegible]o pumps, v[illegible]es and control panels, including adequate working platforms, lifting points, anchor poin[illegible]nd pro[illegible]on for safe sewer pump station chain replacement and pump retrieval • Standardise component qu[illegible]y requirements (p[illegible]s, hoses[illegible]nges, fasteners, seals) including pressure rating, corrosion resistance an[illegible]ompatibility with p[illegible]ped media • Require all pumps[illegible]ociate[illegible]control panels to be supplied with comprehensive technical documentation [illegible]luding s[illegible]ety ins[illegible]ctions, ma[illegible]enance schedules, schematics and certificates of conformity • Intro[illegible]ce a fo[illegible]al desi[illegible]review and a[illegible]proval process that includes WHS and maintenance repre[illegible]tatives p[illegible]ordering or installing new pump systems	
3. Installation, Commissioning and Modification Management	• Unplanned or poor[illegible]rolled pum[illegible] system installations (including plumb[illegible]g pump-valve installations and pum[illegible] system installations) crea[illegible]ctural, electrical or hydraulic failures • Inadequate verification of electrical works associated with pumps leading to electric shock, arc flash or non-compliance with AS/NZS 3000 • Failure to manage high-risk construction work (e.g. work in or near trenches, pits, confined spaces, live services) during pump and valve installations • Uncontrolled modifications to pump systems, controls or pipework over time,	High	• Develop and implement a standard installation and commissioning procedure for all new and modified pump systems, incorporating WHS risk assessment and safe work method statements (SWMS) where high-risk construction work applies • Require only licensed and competent trades (electricians, plumbers, mechanical fitters) to install or alter pump systems, with evidence of licences, insurances and inductions verified prior to engagement • Enforce a permit-to-work system for high-risk activities such as confined space entry, hot work, work on or near live electrical installations, excavation and work at height during pump and valve installations • Ensure all electrical installations for pumps and control panels are tested, verified and documented as compliant with AS/NZS 3000 and any relevant service provider requirements before energisation • Implement a formal change management process for any modification to pump systems, including engineering review, updated drawings, revised risk assessments and management approval • Introduce a commissioning checklist that verifies operation of all safety-critical features such as isolation points, emergency stop functions, level switches, float controls, pressure reliefs, alarms and auto shutdowns	Medium

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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
	leading to unknown configurations and unexpected system behaviours • Lack of commissioning protocols to verify correct operation of interlocks, alarms, emergency stops, level controls and automatic shutdowns • Poor coordination between PCBUs during installation (e.g. electrical contractor, plumber, civil contractor) leading to clashes, service damage or unsafe access arrangements		• Require as-built drawings, updated P&IDs, cable schedules and valve schedules to be produced and stored in a central document management system at completion of installations • Coordinate multi-PCBU works through pre-start co[illegible]ination meetings, site-specific WHS plans and clearly defined areas of responsibility • Conduct post-installation safety inspectio[illegible]efore hand[illegible]er to operations, with corrective actions tracked to completion	
4. Operation, Supervision and System Monitoring	• Inconsistent operating practices across different sites and pump types, including petrol water pumps and vacuum pumps • Over-reliance on informal knowledge rather than documented procedures for routine and abnormal pump operations • Lack of system monitoring (pressure, flow, level, temperature, vibration) leading to undetected deterioration and sudden failures • Inadequate supervi[illegible]n of new or inexperienced ope[illegible]tors working with heavy duty pumps[illegible] sewer [illegible] stations • Operating pumps outside their des[illegible]n envelope (e.g. dry running, over-pressurising, incorrect m[illegible] esulting in mechanical failure, leaks or environmental contamination • Unclear authority and escalation pathways when alarms trigger or abnormal conditions are observed	[illegible]igh	[redacted]	Medium
5. Training, Competency and Information	• Operators, fitters, electricians and plumbers not adequately trained in the specific risks associated with diaphragm pumps, vacuum pumps, petrol water pumps and sewer pump stations	High	[redacted]	Medium

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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
	• Lack of competency verification for staff performing pump overhauls, pump system installation, plumbing pump-valve installation and sewer pump station chain replacement • Insufficient understanding of isolation, lockout-tagout, permit systems and confined space procedures related to pump systems • Inadequate induction of contractors working on pump systems, leading to inconsistent safety practices • Failure to provide up-to-date manuals, hazard information and safety data for fluids handled by pumps		[redacted]	
6. Maintenance, Inspection and Overhaul Management	• Lack of planned preventive maintenance for pumps, valves, contr[redacted] and associated infrastructure leading t[redacted] unexpected failures and breakdowns • Uncontrolled overhau[redacted]es for heavy duty pumps, [redacted]cuum pumps and petrol pumps resu[redacted]g in unsafe reassembly or use [redacted]incor[redacted] • Inadequate inspection of sewer pu[redacted] station lifting chains, guide rails, flo[redacted] and access structures lea[redacted] t[redacted] mechanical failures or dropped objects • Failure to identify deterioration of corrosion-prone components in sewage or aggressive chemical environments • Informal practices during breakdown maintenance, including bypassing safety controls or performing ad hoc modifications under time pressure • Insufficient post-maintenance testing and verification before returning pumps to service	High	[redacted]	Medium

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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
			[redacted]	
7. Isolation, Energy Control and Permit-to-Work Systems	• Uncontrolled release of stored energy (pressure, vacuum, hydraulic head, electrical, kinetic) during work on pump systems • Inadequate isolation procedures for multi-source energy (e.g. electrical, pneumatic, hydraulic, gravity flow) in complex pump installations • Bypassing or defeating interlocks and safety devices to facilitate maintenance or fault finding • Failure to recognise confined space or hazardous atmosphere risks in pump pits, valve chambers and sewer pump stations • Poorly managed permit-to-work processes leading to conflicting activiti[redacted] or work on energised systems	High	[redacted]	Low
8. Hazardous Environments, Confined Spaces and Atmospheric Risks	• Work in or near c[redacted]nfined spaces such as pump pits, valv[redacted] chambe[redacted] sewer pump station[redacted] potential f[redacted] toxic, flammable or oxygen-deficient atmospheres • Use of petrol water pump[redacted] in poorly ventilated areas leading to build-up of carbon monoxide or flammable vapours • Generation of aerosols or biological contaminants from sewage pumping operations, creating infection or illness risks • Lack of clear classification of hazardous areas around pumps handling flammable liquids or vapours • Inadequate systems for gas testing, ventilation and standby/rescue arrangements during work in or near hazardous atmospheres	High	[redacted]	Medium

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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
			[redacted]	
9. Contractor, Supplier and Multi-PCBU Management	• Inconsistent WHS standards between principal organisation and contractors undertaking pump system installation, overhaul and maintenance • Poor communication and coordination between multiple PCBUs at sites with major pump works or sewer pump station upgrades • Use of unvetted contractors or suppliers for critical pump systems and components • Lack of clarity regarding which PCBU controls particular plant, areas or activities associated with pumps • Insufficient oversight of contractor compliance with isolation, permit, confined space and other safety-critic procedures	High	[redacted]	Medium
10. Documentation, Records and Information Management	• Incomplete or ou ated documentation for pump systems, cludin drawings, risk asses ts and inspection reports • Inability to quickly acces critic safety information during emergencies or breakdowns • Loss of maintenance and overhaul history, making it difficult to identify recurring issues or demonstrate compliance • Inconsistent recording of incidents, near misses and corrective actions related to pump systems	Medium	[redacted]	Low

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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
11. Emergency Preparedness and Incident Management	• Lack of specific emergency plans for pump failures, overflows, bursts, sewer spills, fuel leaks or major mechanical failures • Inadequate preparedness for rescue from pump pits, valve chambers and sewer pump stations • Insufficient availability or maintenance of emergency equipment (spill kits, fire extinguishers, emergency lighting, backup pumps) • Poor incident reporting and investigation practices, leading to repeat pump-related incidents	High	[redacted]	Medium

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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

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