Vacuum Excavator

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:

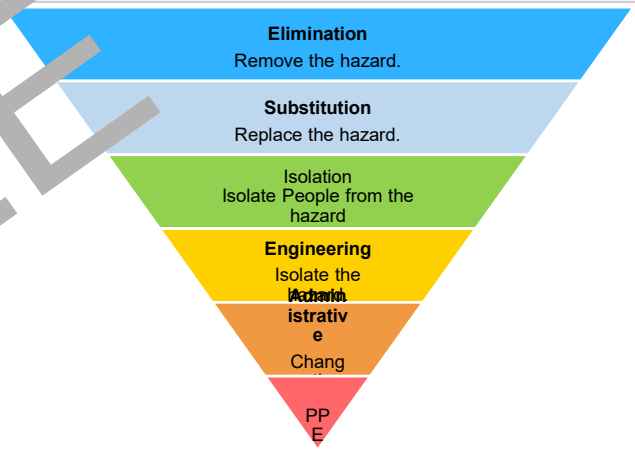
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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. Governance, WHS Duties and PCBU Responsibilities	• Lack of clear allocation of WHS duties between PCBU, principal contractor, client and subcontractors in relation to vacuum truck operations • Failure of officers to exercise due diligence regarding the procurement, operation and maintenance of vacuum excavators • Inadequate integration of vacuum truck risks into the organisation's WHS management system, risk register and consultation arrangements • Absence of documented standards for safe vacuum excavation aligned with WHS Act 2011, WHS Regulation and relevant Codes of Practice • Poor contractor management processes for vacuum truck providers, including unclear responsibilities for plant, operators and traffic control • Insufficient monitoring, review and assurance that WHS obligations specifi to vacuum excavation g met across all sites	High	• Define and document PCBU responsibilities f vacuum truck activities, including plant ownership, operation, maintenance, traffic management d emergency response, and communicate these to all duty holders • Ensure officers can demonstrate due diligenc ceiving regular reports on vacuum excavation risk, incidents, maintenance status and competency, d by activel rifying the adequacy of control measures • Embed vacuum exc ion risk to the corporate S risk register with defined risk owners, escalation pathw and s edule eview dates • Develop ar ndorse a co pany st dard procedure for vacuum truck operations that references the WHS Act 201 WHS Reg ation, Safe k Australia excavation guidance and relevant Australian Stand • Imple a struc ed contractor management framework for vacuum excavation providers, covering pre-qua fica n, WH erformance criteria, agreed roles and responsibilities and performance review require nts • tablis forma onsultation mechanisms with workers and Health and Safety Representatives on chan vacuum truck systems, procedures and equipment • Schedule periodic internal audits and management reviews specifically targeting vacuum truck g rnance, including verification of training, maintenance, fatigue management and traffic interface co rols	Medium
2. Procurement and Design of Vacuum Truck and Equipment	• Purchase or hire vacuum hat are not suitable for ded wo environment (confined sites, gradien underground services exposure) • Lack of verification that omplies with relevant Australian Standards and WHS Regulation requirements for powered mobile plant and pressure equipment • Inadequate consideration of safety features such as emergency stop systems, isolation points, guarding, fall protection and operator visibility aids • Selection of incompatible hoses, fittings and nozzles leading to failure, loss of containment or uncontrolled release of high-pressure fluid or vacuum	High	• Establish a formal procurement specification for vacuum trucks and associated equipment that clearly defines intended use, operating environment, performance requirements and safety features • Require documented evidence of compliance with relevant Australian Standards, manufacturer requirements and WHS Regulation, including plant registration where applicable • Include minimum safety design features in tender specifications, such as interlocks, guarding, lockable isolation, emergency stop locations, reversing cameras, proximity sensors and handrails • Standardise hose, fitting and nozzle types across the fleet, with supplier certification of pressure ratings, compatibility with transported materials and anti-static properties where flammable atmospheres may exist • Specify engineering controls to minimise noise exposure, exhaust emissions, dust generation and manual handling during operation and clean-out (e.g. automated boom systems, integrated hose reels) • Ensure supplier contracts require provision of detailed operator manuals, maintenance schedules, risk information and training resources at handover • Conduct pre-delivery inspections and commissioning checks against a documented checklist prior to accepting any new or hired vacuum truck into service	Medium

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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
	• Failure to specify engineering controls for noise, dust, fumes and manual handling at the design and build stage • Poorly documented technical information from suppliers, including missing plant registration details, pressure vessel certifications and maintenance specifications			
3. Fleet Management, Registration and Roadworthiness	• Vacuum trucks operating without current registration, inspection or certifications where legally required • Systemic failure to ensure roadworthiness, leading to brake, steering, suspension or tyre failures while travelling between sites • Inadequate controls for vehicle mass, load distribution and stability, particularly with partially filled tanks and changing load centres • Lack of a structured system to mana defects, out-of-service vehicles and rectification prior to return to service • Poor integration betwe t management and W systems, resulting in plant w known safety issues remaining i se • Inadequate proces for managin hired or subcontractor vacuum truck within organisational standards	High	• Maintain a c alised flee egiste all co any-owned, leased and regularly used subcontractor vacuum truck including re stration, n on and certification expiry dates • Imp nt a d me d roadworthiness and compliance program that meets or exceeds state and territo vy ve requirements and is integrated with the WHS plant management system • Deve c r orga tional rules on maximum allowable loads, tank fill levels, axle load limits and travel re rictio , with pporting guidance for planners and dispatchers • rodu a for l defect reporting and management system that assigns responsibility, prioritises repa r prevents vehicles with critical defects from being dispatched ink fleet management software with WHS reporting so that incidents, near misses and defect trends on va um trucks trigger engineering reviews and improvement actions Require evidence that subcontractor vacuum trucks meet equivalent registration, inspection and maintenance standards as internal fleet before they are engaged • Schedule planned downtime for major inspections and servicing to avoid operating overdue plant under production pressure	Medium
4. Operator Competency, Licensing and Training Systems	• Vacuum truck operators and offsiders operating plant without adequate competency, verification of training or appropriate driver licence class • Over-reliance on informal on-the-job training with no structured assessment of knowledge or skills regarding vacuum excavation hazards • Inadequate training on identification and protection of underground essential services prior to excavation • Lack of competency in traffic management principles when operating	High	[redacted]	Medium

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	on or adjacent to roads and live worksites • Failure to provide refresher training, leading to skill fade and out-of-date practices, particularly when procedures are updated • Poor recordkeeping of training, inductions and competency assessments, preventing the PCBU from demonstrating due diligence		[redacted]	
5. Journey Management, Site Access and Traffic Interface	• Inadequate planning of routes to and from worksites, exposing drivers to unnecessary high-risk roads, fatigue and time pressure • Poorly controlled interactions between vacuum trucks, light vehicles, pedestrians and other mobile plant on or near worksites • Lack of formalised traffic management plans and permits when operating on public roads, shoulders or within roadwork zones • Unclear site access rul[illegible]vacuum trucks relating to ove[illegible]ead hazards, underground servi[illegible]s, ground stability and exclusion zon[illegible] • Communication fail[illegible]between cl[illegible]t, principal contractor and vacuum tru[illegible] operator regarding site layout an[illegible]affic flows • Pressure to park or operate vacuum trucks in unsafe positions to minimise hose runs or disruption to other works	Hig[illegible]	[redacted]	Medium
6. Safe Systems of Work, Procedures and Permits	• Absence of formal procedures governing vacuum excavation, leading to inconsistent practices and reliance on individual operator judgement • Procedures that focus only on task steps and do not address system-level controls for planning, authorisation and supervision • Inadequate permit-to-work processes for excavation around live services,	High	[redacted]	Medium

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	hazardous atmospheres or within confined spaces connected to the vacuum system • Failure to integrate vacuum truck activities into broader site safe work method statements and risk assessments • Out-of-date or inaccessible procedures, resulting in workers applying superseded or informal methods • Poor control over variations or deviations from approved methods when faced with time or production pressures		[redacted]	
7. Plant Inspection, Maintenance and Integrity Management	• Systemic failure to perform scheduled maintenance on vacuum trucks, pumps, tanks, hose reels and lifting components • Use of damaged or degraded hoses, fittings and nozzles due to poor inspection regimes and lack of lifecycle tracking • Inadequate manag[illegible]ent of pressure systems and vacu[illegible] tanks, including missed inspection[illegible]pressure [illegible] testing and structu[illegible]check • Poorly documented maintenance history, making it difficult to identi[illegible] recurring defects or end-[illegible]ant • Maintenance carried out by unqualified personnel or external providers without proper oversight or specification • Failure to quarantine unsafe plant or remove it from service following serious defects or incidents	High	[redacted]	Medium
8. Underground Services, Excavation Planning and Service Location	• Insufficient pre-planning for underground services leading to strikes on electricity, gas, water, telecommunications or unknown services	High	[redacted]	Medium

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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
	• Over-reliance on vacuum excavation as inherently safe, resulting in poor application of service plans and detection technologies • Inadequate systems for obtaining, interpreting and communicating utility plans and as-built drawings to the vacuum truck crew • Lack of formal verification process to ensure all relevant permits, clearances and service location checks are complete before excavation commences • Fragmented responsibilities between client, principal contractor and vacuum truck provider regarding service identification and isolation • Incomplete recording and handover of discovered or exposed services for future works		[redacted]	
9. Fatigue, Work Scheduling and Supervision	• Extended working hours, irregular shifts and long travel times associated with mobile vacuum truck operations leading to fatigue • Inadequate supervi[redacted]n of remote or isolated vacuum tr[redacted]k crews resulting in unsafe decision-m[redacted]ing under[redacted] client pressure • Poor coordination of vacuum truck availability with other site activitie[redacted] causing rushed set-up, sh[redacted]d breaks or overtime • Lack of systems to manage concurrent jobs, emergency call-outs and after-hours works for the same small group of operators • Cultural norms that discourage reporting of fatigue or declining unsafe work schedules • Supervisors without specific understanding of vacuum truck risks making uninformed scheduling and resourcing decisions	High	[redacted]	Medium

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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
10. Environmental Management and Waste Handling Systems	• Inadequate systems for classification, transport and disposal of liquid and solid waste collected by vacuum trucks • Uncontrolled discharges or spills of slurry, contaminated water, drilling muds or hazardous substances during transport, transfer or dewatering • Lack of clarity on environmental obligations and licences applicable to vacuum truck operations in different jurisdictions • Insufficient segregation of incompatible wastes leading to chemical reactions, off-gassing or damage to plant and infrastructure • Poor documentation of waste chains, including tracking of quantities, types and disposal locations • Reputational and regulatory risk arisi from subcontracted disposal activities not meeting legal requirements	High	[redacted]	Medium
11. Emergency Preparedness, Incident Response and Reporting	• Lack of coordinate emergency response plans sp ific to vacuum truck incidents such as dergro e strikes, spills, rollove exposure t hazardous atmospheres • Inadequate emergency quip t and communication systems for remote or dispersed vacuum truck crews • Failure to recognise and notify notifiable incidents under the WHS Act 2011 involving vacuum excavation activities • Poor post-incident investigation quality leading to repeated system failures and missed improvement opportunities • Unclear roles between client, principal contractor and vacuum truck operator during emergencies	High	[redacted]	Medium

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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 testing of emergency response arrangements for realistic vacuum truck scenarios		[redacted]	
12. Health Monitoring, PPE Standards and Exposure Controls	• Inadequate systems to manage worker exposure to noise, vibration, exhaust fumes, dust, biohazards and chemicals associated with vacuum excavation • Over-reliance on personal protective equipment without higher-level controls being considered or implemented • Lack of criteria and systems for health monitoring where exposures to hazardous substances or high noise are foreseeable • Inconsistent PPE standards between principal contractor, client and vacuum truck company, causing confusion and non-compliance • Insufficient processes to manage individual health restrictions, fitness for work and respiratory protection suitability • Poor storage, inspection and replacement practices for critical PPE such as respirators, hearing protection and fall protection equipment	High	[redacted]	Medium

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