

Directional Drilling Risk Assessment

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

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU ON 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 | 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. Preparation | equipment failure, incorrect setup | 3H | <ul style="list-style-type: none"> - Conduct a pre-start equipment check - Train staff in correct setup procedures - Ensure all equipment is regularly maintained - Use only certified and tested equipment - Brief all team members on emergency protocols - Verify site conditions before beginning - Clear work area of any obstructions - Inspect drill equipment for wear and tear - Confirm communication protocols - Test equipment functions | 2M |
| 2. Site Survey | unidentified underground services, working in confined spaces | 4H | <ul style="list-style-type: none"> - Utilise service detection equipment - Review service drawings from utility companies - Conduct visual inspections for warning signs - Use confined space entry procedures where needed - Ensure ventilation is adequate - Train workers on confined space safety - Keep entry and exit points clear - Establish an emergency plan - Brief all workers on site survey results - Provide and check use of PPE | 2M |
| 3. Set Up Equipment | unstable equipment positioning, manual handling injuries | 3H | <ul style="list-style-type: none"> - Use mechanical aids for lifting - Ensure even ground for equipment placement - Implement tag-out procedures for unsafe equipment - Train workers in correct manual handling techniques - Inspect equipment setup stability - Secure equipment against movement - Use indicators for safe equipment zones - Apply load limits strictly | 1L |

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| | | | <ul style="list-style-type: none"> - Conduct safety briefing prior to setup - Allocate sufficient number of workers | |
| 4. Drilling Commencement | miscommunication between operators, equipment malfunction | 3H | <ul style="list-style-type: none"> - Establish clear communication protocols between operators - Conduct pre-drill inspection of equipment - Use standardized hand signals for equipment operation - Implement a stop-work procedure in case of malfunction - Ensure operators are trained and certified - Maintain a safe distance from the drilling area - Use appropriate PPE (hard hats, safety glasses) - Regularly inspect and maintain equipment - Follow manufacturer's instructions for equipment use - Establish a clear work area and barriers - Use proper drilling techniques to avoid equipment damage | 2M |
| 5. Drilling Operation | drill overheating, cooling fluid spillage | 4A | <ul style="list-style-type: none"> - Monitor drill temperature and stop if overheating occurs - Use appropriate cooling fluid and maintain proper levels - Implement spill containment measures - Use proper handling techniques for cooling fluid - Regularly inspect and maintain equipment - Follow manufacturer's instructions for equipment use - Establish a clear work area and barriers - Use proper drilling techniques to avoid equipment damage - Implement a stop-work procedure in case of malfunction - Ensure operators are trained and certified - Maintain a safe distance from the drilling area - Use appropriate PPE (hard hats, safety glasses) | 2M |
| 6. Obstacle Detection | impact with underground obstacles, drill jamming | 4A | <ul style="list-style-type: none"> - Implement a stop-work procedure in case of jamming - Use appropriate drilling techniques to avoid obstacles - Regularly inspect and maintain equipment - Follow manufacturer's instructions for equipment use - Establish a clear work area and barriers - Use proper drilling techniques to avoid equipment damage - Implement a stop-work procedure in case of malfunction - Ensure operators are trained and certified - Maintain a safe distance from the drilling area - Use appropriate PPE (hard hats, safety glasses) | 2M |

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| | | | | |
| 7. Extraction of Equipment | equipment damage, personal injury during extraction | 3H | | 1L |
| 8. Post-Operation Inspection | residual stresses & equipment operator fatigue | 2M | | 1L |
| 9. Reporting and Documentation | incomplete reporting, loss of critical data | 2M | | 1L |

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| | | | | |
| 10. Decommissioning | unsecure storage of equipment, chemical residue | 3H | | 1L |
| 11. Emergency Preparedness | lack of emergency equipment, poor emergency response | 4A | | 2M |
| 12. Training Programs | skill gaps, unfamiliarity with procedures | 3H | | 1L |

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| | | | | |
| 13. Environmental Monitoring | pollution, ecosystem disruption | 3H | | 1L |
| 14. Legal Compliance | non-compliance with regulations inadequate documentation | 4A | | 1L |
| 15. Continuous Improvement | stagnation, resistance to change | 2M | | 1L |

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SAMPLE

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 IF 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 2017

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>

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/laws-and-compliance/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