

Pipe Insulation Lagging and Cladding

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.	Administrative Change	
								PPE	

  

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. WHS Governance, Legal Compliance & Consultation	<ul style="list-style-type: none"> <li>Lack of clear WHS governance structure for insulation and cladding activities</li> <li>Inadequate understanding of duties under WHS Act 2011 and WHS Regulations</li> <li>Insufficient consultation with workers and Health and Safety Representatives (HSRs)</li> <li>Failure to consider specific risks of pipe insulation, trailer insulation, and removal/reinstall activities at the planning stage</li> <li>No formal process to review incidents, near misses and audit findings</li> <li>Poor integration of contractor WHS obligations into organisational systems</li> </ul>	4A	<ul style="list-style-type: none"> <li>Establish a documented WHS management system aligned to WHS Act 2011, WHS Regulations and applicable Australian Standards (e.g. AS/NZS 4501 or ISO 45001 equivalent)</li> <li>Define and communicate WHS roles, responsibilities and accountabilities for managers, supervisors, project engineers and workers involved in pipe insulation lagging and cladding</li> <li>Implement a formal consultation process with workers, HSRs and contractors for changes to insulation materials, work methods, equipment and scheduling</li> <li>Maintain a legal register identifying relevant legislation, codes of practice (e.g. Hazardous Chemicals, Asbestos, Construction Work) and standards relating to insulation and cladding</li> <li>Establish governance meetings (e.g. monthly WHS committee) to review WHS performance, incidents, trends and improvement actions for insulation activities</li> <li>Include WHS performance and compliance clauses in contracts with insulation and cladding subcontractors, including right of audit and minimum standards</li> <li>Implement structural management of change (MoC) procedure for introducing new insulation material, tool access systems or methods of removal and reinstatement</li> </ul>	3H
2. Design, Engineering & Specification of Insulation Systems	<ul style="list-style-type: none"> <li>Insulation and cladding designs that not adequately consider safe access, maintenance and replacement</li> <li>Selection of insulation materials with hazardous properties (e.g. asbestos, respirable fibres, hazardous chemicals) without appropriate controls</li> <li>Insufficient allowance in design for thermal expansion, movement and fitting methods leading to future failures/unsafe repairs</li> <li>Poor specification of corrosion protection leading to concealed corrosion under insulation (CUI)</li> <li>Trailer insulation designs that obstruct emergency egress, visibility or vehicle controls</li> <li>Lack of consideration for fire performance and combustibility of insulation products</li> </ul>	4A	<ul style="list-style-type: none"> <li>Integrate Safety in Design (SiD) reviews into all projects involving pipe insulation lagging, cladding and trailer insulation, with documented risk assessments and actions</li> <li>Specify non-asbestos, low-dust, low-respirable-fibre insulation materials compliant with Australian Standards and relevant codes of practice</li> <li>Require designers and engineers to demonstrate that designs allow safe access for inspection, maintenance, removal and reinstallation (e.g. platforms, walkways, removable panels)</li> <li>Include corrosion under insulation (CUI) risk assessment in design and specify appropriate coatings, vapour barriers, drainage and inspection points</li> <li>Ensure trailer insulation systems are engineered to maintain structural integrity, not compromise vehicle safety systems, and permit safe access, egress and visibility</li> <li>Incorporate fire risk assessment into material selection (e.g. AS 1530 series), and specify non-combustible or fire-retardant systems where required</li> <li>Mandate engineering review and sign-off for any non-standard insulation or cladding arrangement, including high-temperature or cryogenic systems</li> </ul>	2M
3. Planning, Scheduling & Work Integration	<ul style="list-style-type: none"> <li>Poor coordination of insulation activities with other trades leading to congestion and conflicting tasks</li> </ul>	3H	<ul style="list-style-type: none"> <li>Develop project-specific WHS plans that include an insulation and cladding work program integrated with other disciplines and site operations</li> </ul>	2M

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
	<ul style="list-style-type: none"> <li>Insufficient planning for isolation and depressurisation of pipework before insulation removal or install</li> <li>Inadequate consideration of lead times for materials, equipment and competent labour resources</li> <li>Work on trailers and pipe systems scheduled in high-traffic or operational areas without adequate segregation</li> <li>Inadequate allowance for weather conditions affecting insulation work (e.g. rain, extreme heat, wind)</li> <li>Compressed timeframes leading to shortcuts in removal and reinstatement of insulation and cladding</li> </ul>		<ul style="list-style-type: none"> <li>Use permit-to-work and isolation planning systems to ensure pipework is depressurised, de-energised and safe before insulation removal or installation</li> <li>Implement planning meetings (pre-start, look-ahead) to coordinate access, crane use, scaffolding, and trailer positioning with other site activities</li> <li>Apply risk-based scheduling to avoid insulation and cladding work during peak traffic and high-congestion periods, and designate controlled work zones</li> <li>Include weather contingency plans in work schedules, specifying trigger points for stopping or deferring exposed insulation tasks, especially at heights or on trailers</li> <li>Require documented work sequencing for major removal and reinstatement campaigns to ensure adequate time for inspections, corrosion repairs and quality checks</li> <li>Monitor schedule pressure and establish escalation procedures if deadlines threaten WHS or quality standards</li> </ul>	
4. Procurement, Verification & Management of Insulation Materials	<ul style="list-style-type: none"> <li>Procurement of non-compliant or unsafe insulation and cladding materials (e.g. asbestos-contaminated, incorrect rating, inadequate fire performance)</li> <li>Lack of Safety Data Sheets (SDS) and technical data for insulation adhesives, sealants and coatings</li> <li>Use of incompatible materials increasing corrosion, fire risk or degradation</li> <li>Uncontrolled substitution of materials by suppliers or contractors without risk assessment</li> <li>Inadequate labelling and availability of materials used on trailers and pipe systems</li> <li>Storage conditions degrading insulation integrity before installation</li> </ul>	3H	<p>[REDACTED]</p>	1L
5. Contractor, Worker Competency & Training Management	<ul style="list-style-type: none"> <li>Insufficient competency of workers undertaking pipe insulation, lagging, cladding, and trailer insulation tasks</li> <li>Lack of training in specific hazards such as working around pressurised systems, hot surfaces and confined spaces</li> </ul>	4A	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	2M

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
	<ul style="list-style-type: none"> <li>Inadequate competencies for removal of legacy insulation containing asbestos or other hazardous materials</li> <li>Supervisors not trained in WHS risk management and permit systems</li> <li>No formal verification of licences, high-risk work tickets, or trade qualifications</li> <li>Poor understanding of safe removal and reinstatement practices leading to damage, poor fit-up and future failures</li> </ul>		[REDACTED]	
6. Asbestos, Hazardous Materials & Legacy Insulation Management	<ul style="list-style-type: none"> <li>Legacy insulation containing asbestos or other prohibited substances on existing pipework or trailers</li> <li>Inadequate identification and labelling of areas with asbestos-containing materials (ACM)</li> <li>Uncontrolled disturbance of ACM during removal and reinstatement of insulation and cladding</li> <li>Insufficient hazardous materials survey data for older facilities and trailers</li> <li>Failure to manage respirable dust and fibres from modern high performance insulations</li> <li>Non-compliance with licensed asbestos removal requirements and air monitoring standards</li> </ul>	4A	[REDACTED]	2M
7. Access, Egress & Working at Height Systems	<ul style="list-style-type: none"> <li>Inadequate permanent or temporary access systems to elevated pipe racks and insulated trailers</li> <li>Use of improvised platforms, ladders or vehicle bodies to reach insulation and cladding</li> </ul>	4A	[REDACTED]	2M

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
	<ul style="list-style-type: none"> <li>Poorly designed trailer insulation works requiring work at height without fall prevention</li> <li>Insufficient planning for safe access for future inspections, repairs and re-insulation</li> <li>Cluttered access paths leading to trips and obstructed emergency egress</li> <li>Inadequate control of interaction between mobile plant and workers accessing elevated areas</li> </ul>		[REDACTED]	
8. Plant, Tools & Equipment Management	<ul style="list-style-type: none"> <li>Use of poorly maintained cutting, crimping and fastening tools for cladding and lagging</li> <li>Uncontrolled introduction of new tools or equipment without risk assessment (e.g. hot works tools, power cutters)</li> <li>Inadequate guarding and safety features on equipment used for shaping metal cladding</li> <li>Failure of lifting devices used to position large insulation segments on pipes or trailers</li> <li>Insufficient systems for inspecting and tagging electrical tools used in moist or conductive environments</li> <li>Use of non-rated equipment in hazardous areas around process plant</li> </ul>		[REDACTED]	1L
9. Manual Handling, Ergonomics & Materials Handling Systems	<ul style="list-style-type: none"> <li>Repetitive and awkward manual handling of insulation batts, pipe sections and cladding sheets</li> <li>Poorly planned storage locations leading to long carries and overhead lifting for trailer and pipe insulation materials</li> </ul>	3H	[REDACTED]	2M

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
	<ul style="list-style-type: none"> <li>Lack of mechanical aids for transporting large or bulky insulation components</li> <li>Inadequate system for assessing manual handling risks for removal and reinstatement tasks on existing pipework</li> <li>No standardised packaging or pre-cutting strategies, causing unnecessary trimming and handling on site</li> <li>Cumulative fatigue and musculoskeletal disorders from sustained work in cramped or overhead positions</li> </ul>		[REDACTED]	
10. Environmental Conditions, Hot/Cold Surfaces & Confined Spaces	<ul style="list-style-type: none"> <li>Exposure to hot or cryogenic pipe surfaces during insulation removal or failed insulation systems</li> <li>Working in poorly ventilated or confined areas around insulated pipe racks or tank farms</li> <li>Heat stress or cold stress for workers undertaking insulation tasks in extreme ambient conditions</li> <li>Condensation and moisture build-up leading to slippery surfaces and electrical hazards</li> <li>Inadequate monitoring of atmospheric conditions where insulation removal undertaken in pits, voids or under liners</li> <li>Lack of controls for working near live steam or hot fluids when full isolation is not feasible</li> </ul>	3H	[REDACTED]	2M
11. Traffic, Site Logistics & Trailer Movement Controls	<ul style="list-style-type: none"> <li>Interaction between moving trailers, delivery vehicles and workers installing insulation</li> <li>Inadequate traffic management in areas used for insulating trailers and loading insulation materials</li> <li>Poorly planned trailer positioning creating fall hazards or pinch points during insulation activities</li> </ul>	3H	[REDACTED]	1L

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
	<ul style="list-style-type: none"> <li>Lack of controls for securing trailers against movement while workers are on or under them</li> <li>Congested laydown areas for insulation and cladding leading to collisions and pedestrian risks</li> <li>Failure to consider transport regulations and load security when moving insulated trailers off site</li> </ul>		[REDACTED]	
12. Health Monitoring, Exposure Control & PPE Programs	<ul style="list-style-type: none"> <li>Chronic exposure to insulation dusts, fibres and chemical vapours from adhesives or coatings</li> <li>Inconsistent use of respiratory protection due to poor fit-testing or inadequate supervision</li> <li>Lack of health monitoring for workers with long-term exposure to hazardous substances associated with insulation</li> <li>Insufficient systems for laundering or disposing of contaminated workwear</li> <li>Reliance on PPE as the primary control instead of higher-order controls</li> <li>Inadequate consideration of noise from cutting and fabrication equipment for cladding</li> </ul>	3H	[REDACTED]	2M
13. Quality Assurance, Inspection & Corrosion Under Insulation (CUI) Management	<ul style="list-style-type: none"> <li>Inadequate inspection of substrate condition before re-installing insulation and cladding</li> <li>Failure to detect corrosion under insulation, leading to future leaks, bursts or structural failure</li> <li>Poor workmanship and inconsistent application of insulation systems on pipes and trailers</li> <li>Lack of documented quality standards and inspection criteria for insulation installations</li> <li>No scheduled inspection program to identify insulation damage, water ingress and degradation</li> </ul>	4A	[REDACTED]	2M

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
	<ul style="list-style-type: none"> <li>Unrecorded deviations from design leading to untraceable issues in future maintenance</li> </ul>		[REDACTED]	
14. Emergency Preparedness, Incident Management & First Aid	<ul style="list-style-type: none"> <li>Delayed response to burns or cold-contact injuries from exposed pipes during insulation works</li> <li>Inadequate first aid coverage and equipment in areas where insulation removal and installation occur</li> <li>Lack of specific emergency procedures for fibre or dust releases during accidental insulation damage</li> <li>Insufficient planning for fire scenarios involving insulation materials on trailers or process plant</li> <li>Poor incident reporting and investigation processes leading to repeat insulation-related events</li> <li>Unclear communication protocols in remote or isolated insulation work locations</li> </ul>	3H	[REDACTED]	1L
15. Documentation, Records, Audit & Continuous Improvement	<ul style="list-style-type: none"> <li>Incomplete or outdated procedures for insulation lagging, cladding and trailer insulation</li> <li>Poor record keeping for inspections, permits, training and maintenance associated with insulation systems</li> <li>Lack of systematic WHS audits focussed on insulation and cladding risks</li> <li>Failure to incorporate findings from incidents, near misses and worker feedback into system improvements</li> <li>Uncontrolled documentation leading to use of superseded specifications or drawings</li> <li>Limited management visibility of WHS performance indicators for insulation activities</li> </ul>	3H	[REDACTED]	1L

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

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 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.