

Cryogenics | SAFE WORK METHOD STATEMENT (SWMS)

TASK OR ACTIVITY: Cryogenics

Business Name:	ABN:	SWMS#
Business Address:		
Contact Person:	Phone:	Email:

THIS SAFE WORK METHOD STATEMENT 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 safe work method statement (SWMS) is prepared before the proposed work starts.

Full Name:		
Signature:	Title:	Date:
Details of the person(s) responsible for ensuring implementation, monitoring compliance of the SWMS as well as reviews and modifications of the SWMS.		
Full Name:	Title:	Phone:

ALL PERSONNEL PARTICIPATING IN ANY ACTIVITY ON THIS SWMS MUST HAVE THE FOLLOWING COMMUNICATED

Safety meetings or toolbox talks will be scheduled in accordance with legislative requirements to first identify any site hazards, then to communicate those hazards and then to further take steps to either eliminate or control each hazard.

If an incident or a near miss occurs, all work must stop immediately. Depending on the severity of the incident, a meeting will be called with all workers to amend the SWMS if required. The meeting may also be an educational opportunity.

Any changes made to the SWMS after an incident or a near miss must be approved by the Person Conducting Business or Undertaking and communicated to all relevant personnel.

The SWMS must be kept and be available for inspection at least until the work is completed. Where a SWMS is revised, all versions should be kept. If a notifiable incident occurs in relation to which the SWMS relates, then the SWMS must be kept for at least two years from the occurrence of the notifiable incident.

NAME OF ALL RELEVANT PERSONNEL WHO HAVE BEEN CONSULTED AND COMMUNICATED TO IN THE DEVELOPMENT AND APPROVAL OF THIS SWMS

CLIENT OR PRINCIPAL CONTRACTOR DETAILS

Client:	SCOPE OF WORKS
Project Name:	
Project Address:	
Project Manager:	
Contact Phone:	
Date SWMS supplied to Project Manager:	

ANY HIGH-RISK CONSTRUCTION WORK BEING CARRIED OUT

- | | |
|--|--|
| <input type="checkbox"/> involves a risk of a person falling more than 2 meters | <input type="checkbox"/> is carried out on or near pressurised gas mains or piping |
| <input type="checkbox"/> is carried out on a telecommunication tower | <input type="checkbox"/> is carried out on or near chemical, fuel or refrigerant lines |
| <input type="checkbox"/> involves demolition of an element of a structure that is load-bearing | <input type="checkbox"/> is carried out on or near energised electrical installations or services |
| <input type="checkbox"/> involves demolition of an element related to the physical integrity of a structure | <input type="checkbox"/> is carried out in an area that may have a contaminated or flammable atmosphere |
| <input type="checkbox"/> involves, or is likely to involve, disturbing asbestos | <input type="checkbox"/> involves tilt-up or precast concrete |
| <input type="checkbox"/> involves structural alteration or repair that requires temporary support to prevent collapse | <input type="checkbox"/> is carried out on, in or adjacent to a road, railway, shipping lane or other traffic corridor |
| <input type="checkbox"/> is carried out in or near a confined space | <input type="checkbox"/> is carried out in an area of a workplace where there is any movement of powered mobile plant |
| <input type="checkbox"/> is carried out in/near a shaft or trench deeper than 2m or tunnel involving use of explosives | <input type="checkbox"/> is carried out in areas with artificial extremes of temperature. |
| <input type="checkbox"/> is carried out in or near water or other liquid that involves a risk of drowning. | <input type="checkbox"/> involves diving work. |

ANY HIGH-RISK MACHINERY OR EQUIPMENT NEARBY

RISK MATRIX

LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC	SCORE	ACTION	HEIRARCHY 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 the work.
Notes on Hierarchy of Controls: Elimination methods are the most effective and preferred when controlling a hazard. Substitution is the second most effective method of controlling a hazard. Engineering by isolation is the third most effective, while Administrative Controls by changing the work is the fourth most effective method. PPE (Personal Protective Equipment) is the least effective method.								PPE

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Select the appropriate PPE above suitable for the equipment used or the job task being performed (if applicable).

FOOT PROTECTION	HAND PROTECTION	HEAD PROTECTION	HEARING PROTECTION	EYE PROTECTION	RESPIRATORY PROTECTION	FACE PROTECTION	HIGH-VIS CLOTHING	PROTECTIVE CLOTHING	FALL PROTECTION	SUN PROTECTION	HAIR/JEWELLERY SECURED
											
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other PPE Required:

Permit or Licenses Requirements

Mandatory Qualifications and Training

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	Improper storage, Inadequate safety equipment	3H	<ul style="list-style-type: none"> - Training and Supervision: Ensure all employees involved in cryogenic operations receive thorough training and regular refreshers on safe handling procedures, and are adequately supervised during the preparation phase. - Proper Storage: Store cryogenic materials in designated, clearly marked, well-ventilated areas, away from incompatible substances and ignition sources to prevent accidents involving improper storage. - Safety Equipment Compliance: Verify that all relevant safety equipment—including gloves, face shields, and protective clothing—is provided to workers and complies with Australian Standards for cryogenic handling. - Clearly Marked Containers: Label all containers used for transporting or storing cryogenic materials with appropriate hazard warnings, ensuring easy identification of contents and hazards associated with them. - Emergency Procedures: Develop a comprehensive emergency response plan that outlines the necessary steps to be taken in case of spills, leaks, and other incidents involving cryogenics. Conduct periodic drills to ensure workers are familiar with the procedures. - Inspection and Maintenance: Regularly inspect and maintain cryogenic storage vessels and equipment, promptly addressing any issues discovered to ensure proper functioning and minimise potential hazards. - Ventilation: Provide adequate ventilation in storage and working areas to prevent the build-up of potentially harmful gases, such as evaporating nitrogen, which could lead to asphyxiation. - Chemical Inventory Management: Implement a robust chemical inventory management system to track and monitor usage and storage of cryogenic materials, ensuring their safe management throughout the workplace. - Safe Work Practices: Establish documented safe work practices and standard operating procedures (SOPs) for working with cryogenics, outlining step-by-step processes for preparing and handling these materials. - Monitoring and Review: Continuously monitor and review the effectiveness of control measures implemented to address cryogenic hazards, making modifications as needed to ensure ongoing worker safety and compliance with Workplace Health and Safety regulations. 	2M
2. Transportation	Cryogenic spills, Vehicular accidents	3H	<ul style="list-style-type: none"> - Proper Training and Licensing: Ensure that all personnel involved in the transportation of cryogenic materials are adequately trained and possess the appropriate licenses and certifications for handling hazardous substances. - Pre-transport Inspection: Conduct a thorough pre-transport inspection of vehicles, containers, and equipment to identify any defects or maintenance issues that could lead to accidents or spills. - Secure Storage Containers: Utilise specifically designed and approved cryogenic storage containers that have been inspected and maintained to prevent leaks or ruptures during transportation. - Appropriate Labeling: Clearly label all cryogenic containers with relevant safety information, hazard warnings, and emergency contact details to ensure proper handling and quick response in case of emergencies. 	2M

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			<ul style="list-style-type: none"> - Route Planning: Plan the most direct and efficient route for transportation to minimise travel time and potential exposure to hazards such as high traffic areas or poor road conditions. - Vehicle Maintenance: Regularly service and maintain transport vehicles to ensure they are in optimal working condition, reducing the risk of vehicular accidents due to mechanical failures. - Emergency Response Plan: Develop a comprehensive emergency response plan that outlines the steps to be taken in the event of a cryogenic spill or vehicular accident. This should include procedures for spill containment, first aid, and coordinating with emergency services. - Communication Protocols: Establish clear communication protocols among team members involved in the transportation process to ensure timely updates on progress, hazards, and emergencies. - Personal Protective Equipment (PPE): Provide necessary PPE such as goggles, gloves, and face shields to personnel handling cryogenic materials, reducing the risk of injuries from spills and exposure. - Speed Limit Adherence: Strictly adhere to posted speed limits and adjust driving behaviours based on road conditions to minimise the risk of vehicular accidents. - Incident Reporting: Implement a system for reporting incidents relating to cryogenic spills or vehicular accidents, allowing for prompt investigation and implementation of corrective actions to prevent future occurrences. - Continuous Improvement: Regularly review and update control measures, training programs, and emergency response plans to incorporate new technologies, industry best practices, and lessons learned from past incidents. 	
3. Equipment setup	Incorrect installation, Leaks	2M	<ul style="list-style-type: none"> - Proper training and certification: Ensure that all personnel involved in the equipment setup are adequately trained and certified to handle cryogenic materials, as well as familiar with the specific equipment being used. - Pre-setup inspection: Conduct a thorough inspection of all equipment components before installation to identify any damaged or faulty parts that might cause incorrect installation or leaks. - Manufacturer's guidelines: Follow manufacturer's recommendations and guidelines for equipment setup and assembly to ensure safe and accurate installation. - Use of appropriate tools: Utilise only approved and suitable tools for the installation and setup process to minimise the chances of incorrect installation or damage to equipment components. - Leak detection systems: Incorporate leak detection systems, such as pressure testing or helium mass spectrometry, at critical points during the installation process to identify potential leaks early on. - Double-check connections: After assembling the equipment, double-check all connections and fittings to ensure a secure and leak-free setup. - Pressure relief devices: Install appropriate pressure relief devices in accordance with the relevant guidelines and standards, to prevent over-pressurization and potential leaks from occurring. - Protective gear: All personnel should wear appropriate personal protective equipment (PPE) during equipment setup, including gloves, face shields, and safety glasses, to minimise the risks associated with handling cryogenic materials. 	1L

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			<ul style="list-style-type: none"> - Regular maintenance: Implement a regular maintenance schedule to inspect and address any potential issues with the equipment that could cause incorrect installation or leaks in the future. - Emergency procedures: Establish clear emergency response procedures in the event of incorrect installation or leaks, including immediate isolation of the area, safe shutdown of the equipment, and notification of the appropriate authorities. 	
4. Cryogen dispensing	Overexposure, Chemical burns	3H	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	1L
5. Maintenance	Electrical hazards, Faulty machinery	2M		1L

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			<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	
6. Monitoring	Inadequate ventilation, Oxygen deficiency	3H	<div></div> <div></div>	1L

SAMPLE

SAMPLE

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
			<div>SAMPLE</div> <div>[REDACTED]</div> <div>[REDACTED]</div> <div>[REDACTED]</div> <div>[REDACTED]</div> <div>[REDACTED]</div> <div>[REDACTED]</div> <div>[REDACTED]</div> <div>[REDACTED]</div>	
9. Decanting	Splashes or spills, Pressure buildup	3H	<div>[REDACTED]</div> <div>[REDACTED]</div> <div>[REDACTED]</div> <div>[REDACTED]</div>	1L

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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
			<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	
10. Waste disposal	Unsecured waste, Environmental damage	2M	<div></div> <div></div> <div></div> <div></div> <div></div>	1L

[illegible]

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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>

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 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>

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) 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>

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

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.

SIGNATORIES OF THE SAFE WORK METHOD STATEMENT

The signed and dated personnel listed below have cooperated in the consultation and development of this Safe Work Method Statement which has been approved by the Person/s Conducting a Business or Undertaking (PCBU). In signing this Safe Work Method Statement each individual acknowledges and confirms that they have read this SWMS in full, having raised any questions for items on this Safe Work Method Statement that require clarification, and confirms that they are competent, skilled and knowledgeable for the task assigned to them. Every person acknowledges that they have received the relevant training and qualifications where required, before carrying out any work contained in this Safe Work Method Statement. By signing this Safe Work Method Statement each individual agrees to work safely, to follow any safe work instructions which are provided, and agrees to use all Personal Protective Equipment where appropriate.

Worker Name	Signature	Date

SAFE WORK METHOD STATEMENT MONITORING AND REVIEW

The SWMS must be reviewed regularly to make sure it remains effective and must be reviewed (and revised if necessary) if relevant control measures are revised. The review must be carried out in consultation with workers (including contractors and sub-contractors) who may be affected by the operation of the SWMS and their health and safety representatives who represent that work group at the workplace.

When the SWMS has been revised the PCBU must ensure that all persons involved with the work are advised that a revision has been made and how they can access the revised SWMS, including all persons who will need to change a work procedure or system as a result of the review are advised of the changes in a way that will enable them to implement their duties consistently with the revised SWMS. All workers that will be involved in the work must be provided with the relevant information and instruction that will assist them to understand and implement the revised SWMS.

The SWMS must be monitored regularly for the effectiveness of ensuring hazard controls are effective in reducing the risk of incidents, keeping the workplace safe for all personnel. The person responsible for monitoring the effectiveness of the Safe Work Method Statement should employ a multi-faceted approach which includes but is not limited to:

1. Spot Checks.
2. Consultation with workers, contractors and sub-contractors.
3. Internal audits on a continual basis.

An approach of continuous improvement, promptly recording inconsistencies or deficiencies, followed up by immediate corrective action and consultation with all relevant personnel ensures that the PCBU is consistently developing ever-improving systems of safe work principles.

REVIEW NUMBER	1	2	3	4	5	6	7
NAME							
INITIALS							
DATE							

SAFE WORK METHOD STATEMENT REVIEW CHECKLIST

This Safe Work Method Statement Review Checklist is to be followed and used upon initial development of the SWMS to help ensure that all steps have been adequately taken before work commences. Think of this document as an internal audit review checklist before commencing work, and may form part of a Toolbox Talk (safety meeting) and may be used as an opportunity for education and training.

ITEMS WHICH MUST BE INCLUDED IN THE SWMS	COMPLETED	COMMENTS
The company details have been entered, including the project name and address.	<input checked="" type="checkbox"/>	
All relevant personnel consulted during the development of the SWMS.	<input checked="" type="checkbox"/>	
Name, signature, position and date signed of the person approving the SWMS.	<input type="checkbox"/>	
Specific personnel and qualifications, experience is noted in the SWMS.	<input checked="" type="checkbox"/>	
Provides a step-by-step process of tasks required to carry out the activity or task.	<input checked="" type="checkbox"/>	
Adequate risk assessment of any identified hazards has been completed.	<input checked="" type="checkbox"/>	
Foreseeable hazards are identified and documented for each step.	<input checked="" type="checkbox"/>	
Any hazards listed in any site risk assessments have been added to the SWMS.	<input checked="" type="checkbox"/>	
SWMS initial risk (IR) column as well as residual risk (RR) column completed.	<input checked="" type="checkbox"/>	
Check control measures added to the SWMS are the most effective selected.	<input checked="" type="checkbox"/>	
Responsible person is assigned and listed on the SWMS for the implementation of control measures.	<input checked="" type="checkbox"/>	
Permit or licenses requirements specified, such as Hot Work, Electrical Work, Work at Heights etc.	<input checked="" type="checkbox"/>	
SWMS identifies plant and equipment to be used.	<input checked="" type="checkbox"/>	
Details of inspection checks required for any equipment listed as noted on the SWMS.	<input checked="" type="checkbox"/>	
Describes any mandatory qualifications, experience, training or skills required to perform the work.	<input checked="" type="checkbox"/>	
Applicable personal protective equipment is selected on the SWMS.	<input checked="" type="checkbox"/>	
Reflects and documents any legislative references and/or Australian Standards.	<input checked="" type="checkbox"/>	
Identifies any hazardous substances used with specific control measures in line with any SDS.	<input checked="" type="checkbox"/>	
REVIEWED BY		
SIGNATURE		
DATE REVIEWED		
DATE COMPLETED		