Food Storage Cold Chain and Temperature Control

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:

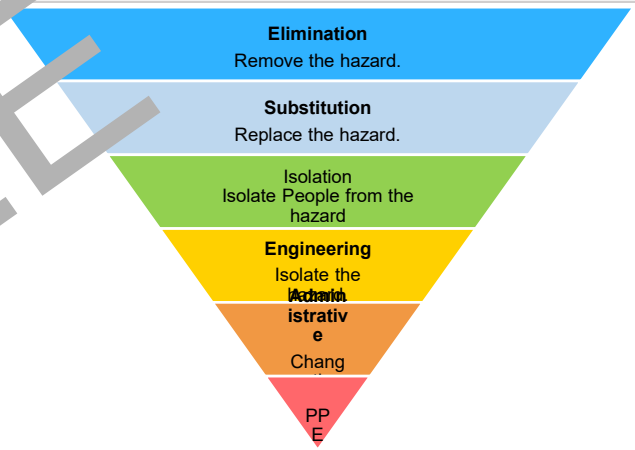
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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 Cold Chain Responsibility	• Unclear allocation of WHS and food safety responsibilities for cold chain management under WHS Act 2011 and food legislation • Board and senior management not receiving accurate information on cold chain performance, incidents and near misses • Lack of integration between WHS, food safety (HACCP) and quality systems leading to gaps in temperature control controls • No formalised duty of care for contractors and transport providers involved in refrigerated logistics • Inadequate resourcing for cold chain infrastructure, maintenance and training • Failure to consider cold chain and temperature control risks in strategic planning and change management (e.g. new sites, new products, extended storage periods)	4A	• Define and document WHS and food safety governance structure that clearly allocates cold chain responsibilities from Board to frontline supervisors • Embed cold chain temperature control responsibilities and KPIs into executive performance plans and site management objectives • Integrate WHS risk management, HACCP, and quality management systems to ensure consistent identification and control of temperature-related risks • Implement formal contractor management procedures that specify cold chain compliance requirements in contracts, SWMS and selection criteria • Undertake annual WHS due diligence reviews focused on cold chain integrity, reporting findings to the Board/governing body • Include cold chain risk assessment in all major projects, procurement decisions and organisational change via documented change management process • Establish a documented cold chain governance policy referencing WHS Act 2011, Food Standards Code and relevant Australian Standards • Conduct regular management reviews of cold chain performance data, trends and non-conformances with documented action plans	3H
2. Cold Chain Risk Management Framework and Hazard Analysis	• Absence of a formal documented risk assessment for cold chain and temperature control across the supply and storage • Inadequate hazard analysis of frozen foods, meat products, leftovers and long-term storage items leading to unrecognised risks • Failure to identify critical control points (CCPs) related to temperature control and time in the danger zone • No systematic consideration of worst-case scenarios such as prolonged power failure, equipment breakdown or transport delay • Risk assessments not reviewed following incidents, near misses, seasonal changes or process changes • Risk ratings not aligned with organisational risk appetite, resulting in	4A	• Implement a documented WHS and food safety risk management procedure specifically addressing cold chain and temperature control hazards • Conduct a comprehensive hazard analysis (e.g. HACCP-based) to identify critical temperature limits for frozen, chilled and reheated foods • Map all cold chain critical control points from supplier receipt through storage, preparation, reheating, cooling, freezing and transport • Include scenario-based risk assessments for long-term storage, power outages, equipment failure, and transport disruptions of meat products • Schedule formal reviews of cold chain risk assessments at least annually and after any incident, regulatory change or process alteration • Apply a standardised corporate risk matrix for assigning and reviewing initial and residual risk ratings for temperature-related hazards • Engage competent persons (e.g. food technologist, WHS professional) to validate assumptions and scientific bases for safe time–temperature limits • Document and communicate control limits, decision trees and escalation criteria for temperature deviations to all relevant staff	2M

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	under-prioritisation of high-consequence cold chain failures			
3. Cold Room, Freezer and Refrigeration Infrastructure Design	• Refrigeration systems not designed for Australian ambient conditions or site-specific heat loads • Insufficient capacity of cold rooms and freezers leading to frequent overloading and temperature excursions • Poor airflow design causing temperature stratification and warm zones within storage units • Lack of redundancy in critical cold chain equipment (single point of failure) • Inadequate separation between raw meats, ready-to-eat foods, leftovers and allergen-containing items • Use of unsuitable storage equipment (e.g. non-food grade shelving, inadequate insulation for long-term frozen storage)	4A	• Engage competent refrigeration engineers to design or verify cold room, freezer and chilled storage systems for worst-case ambient conditions and load • Specify minimum equipment capacities and safety margins in procurement standards based on projected stock volumes and product types • Incorporate airflow design features (e.g. baffles, placement, racking layout) to ensure even temperature distribution and avoid hot spots • Implement engineering redundancy for critical cold chain plant (e.g. backup compressor, secondary cold room or emergency refrigerated storage arrangements) • Design storage segregation systems including dedicated areas, racking and labelling for raw meat, frozen foods, leftovers and ready-to-eat items • Ensure shelving, containers and storage fixtures are food-grade, corrosion-resistant and suitable for long-term frozen storage • Include easy-to-clean surfaces, drain design and pest-proofing considerations in all cold chain infrastructure specifications • Undertake commissioning and validation testing of new or upgraded cold storage facilities to confirm performance at specified setpoints	2M
4. Temperature Monitoring, Data Logging and Alarm Systems	• Inadequate or absent continuous temperature monitoring of cold rooms, freezers and refrigerated transport units • Reliance on manual temperature checks without verification or trend analysis • Temperature probes not calibrated or maintained, providing inaccurate readings • Alarms not configured at appropriate critical limits or not linked to escalation procedures • Temperature data not stored, backed up or reviewed, resulting in undetected chronic deviations • Inadequate monitoring of reheating and cooling processes for leftovers and cooked foods	4A	[redacted]	2M

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5. Preventive Maintenance and Asset Management for Refrigeration	• Lack of planned preventive maintenance leading to unexpected failures of cold rooms, freezers and refrigerated transport units • Inadequate inspection of door seals, hinges and insulation resulting in heat ingress and icing • Failure to maintain and clean condenser and evaporator coils, reducing efficiency and capacity • No formal process for tagging and isolating defective refrigeration equipment from use • Use of unqualified technicians for refrigeration repairs and maintenance • Spare parts not available, leading to prolonged downtime and temperature excursions	4A	[redacted]	2M
6. Food Reception, Supplier Control and Transport Integration	• Suppliers and transport providers no[t] maintaining required temperatures during delivery of frozen goods and meat products • Lack of documen[t]ed temperature requirements in pu[r]chase specifi[c]ations and contracts • Deliveries accepted without verifica[t]ion of product and vehicle temperatur[e] • No procedures for rejecting or quarantining high-risk loads that arrive outside specified temperature limits • Inadequate coordination between despatch times and receiving capacity leading to delays and temperature abuse • Limited control over third-party logistics cold chain systems and monitoring practices	4A	[redacted]	2M
7. Storage Configuration,	• Improper storage configuration resulting in blocked airflow and uneven temperatures in cold rooms and freezers	3H	[redacted]	2M

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Segregation and Stock Management	• Inadequate segregation of raw meats, ready-to-eat foods, leftovers and allergen-containing ingredients • Storage of hot or warm food directly into freezers or fridges causing temperature spikes • Overstocking of freezers and long-term storage units exceeding design capacity • Poor stock rotation (e.g. failure of FIFO) leading to expired or degraded frozen products • Improper packaging or labelling of long-term stored items and leftovers, causing confusion and misuse		[redacted]	
8. Procedures for Freezing, Thawing, Cooling and Reheating Foods	• Inadequate documented procedures for safely freezing and thawing meat products and other high-risk foods • Foods cooled too slowly or in large volumes, spending extended time in temperature danger zone • Improper handling a reheating of leftovers, including ilure to reach safe internal temperatu s • Repeated freezing a hawing of d items, degrading quality and potenti y increasing microbial risks • Lack of clear criteria for discarding foods that have deviated from temperature control limits • Inconsistent practices between shifts or sites regarding frozen goods handling	4A	[redacted]	2M
9. Transport and Distribution of Chilled and Frozen Goods	• Inadequate temperature control during internal transfers and external distribution of frozen and chilled foods • Use of non-refrigerated vehicles or containers for high-risk temperature-sensitive products	4A	[redacted]	2M

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	• Insufficient pre-cooling of vehicles, containers and eutectic plates before loading • Extended loading/unloading times with doors open, causing temperature excursions • Lack of journey planning for long-distance or high-heat routes affecting meat product temperatures • Inadequate securing of loads leading to product damage and compromised packaging during transit		[redacted]	
10. Power Supply, Backup and Emergency Response for Cold Chain	• Loss of mains power causing prolonged temperature excursions in cold rooms and freezers • Backup generators not sized, maintained or fuelled adequately to support critical cold chain loads • No prioritisation framework for which cold chain assets must be maintained during power outages • Lack of documented emergency procedures for relocation or disposal of high-risk foods during extended outages • Staff not trained in responding to temperature alarms and power failures outside normal hours • Inadequate communication with suppliers, customers and regulators during significant cold chain incidents		[redacted]	2M
11. Training, Competency and Supervision for Temperature Control	• Staff not competent in understanding food safety risks associated with temperature control and cold chain breaches • Inadequate training in use of thermometers, data loggers and temperature monitoring systems	3H	[redacted]	2M

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	• Supervisors not adequately trained to interpret data, investigate deviations and enforce procedures • High staff turnover leading to loss of skills and inconsistent practices in frozen goods handling • Training programs not tailored to specific roles (e.g. receivers, cooks, transport staff, storepersons) • No verification that training results in correct behaviours (i.e. lack of competency assessments)		[redacted]	
12. Policies, Procedures, Documentation and Recordkeeping	• Absence of formal policies and procedures covering key cold chain and temperature control activities • Outdated or conflicting documents across sites, leading to inconsistent practices • Staff using undocumented workarounds when procedures are unclear or impractical • Poor recordkeeping of [redacted] checks, maintenance [redacted] incidents and corrective actions • Inadequate control of [redacted] versions and authorisations • Failure to retain records for required durations, hindering investigations and regulatory compliance	3H	[redacted]	2M
13. Contractor, Supplier and Third-Party Management	• External contractors (maintenance, transport, storage) not adhering to cold chain and WHS requirements • Lack of due diligence in selecting third-party cold storage or transport providers • No clear communication of site-specific temperature control procedures to visiting drivers and contractors • Inadequate supervision of contractors working on refrigeration systems, leading to operational disruptions	3H	[redacted]	2M

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	• Third-party documentation (e.g. temperature logs, maintenance records) unavailable or unreliable • Misalignment between internal standards and third-party practices for long-term storage and frozen goods handling		[redacted]	
14. Incident Management, Non-Conformance and Product Recall	• Temperature deviations, equipment failures or contamination events not reported or investigated • Lack of structured process to assess the safety of food after a cold chain breach • Delayed or ineffective product recall or withdrawal following serious temperature control failures • Inadequate communication to workers about lessons learned from incidents and near misses • Regulatory notification requirements not understood or followed after significant cold chain incidents • Repeated similar incidents due to poor root cause analysis and ineffective corrective actions	4A	[redacted]	2M
15. Health, Hygiene and Cross-Contamination Controls in Cold Storage	• Poor personal hygiene practices of staff handling cold chain products, increasing contamination risk • Cross-contamination between raw meats, ready-to-eat foods, leftovers and ingredients due to poor segregation and handling • Inadequate cleaning and sanitising regimes within cold rooms, freezers and associated equipment • Pest ingress into storage areas compromising food and creating additional WHS hazards	3H	[redacted]	2M

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	• Allergen cross-contact due to shared storage or utensils without appropriate controls • Condensation and ice build-up increasing slip hazards and affecting packaging integrity		[redacted]	
16. Environmental Conditions, Ergonomics and Worker Wellbeing in Cold Areas	• Prolonged exposure of workers to low temperatures in freezers and cold rooms causing cold stress and musculoskeletal strain • Poor ergonomics in storage layout leading to overreaching, heavy manual handling of frozen items and awkward postures • Slips, trips and falls from ice, condensation or poorly maintained floor surfaces in chilled areas • Fogging and reduced visibility in cold rooms affecting safe movement and stock handling • Insufficient breaks, rotation or warm-u facilities for workers in low-temperature environments • Noise from refrige ion plant affecting communication an situational awareness	3H	[redacted]	1L

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