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Grain Handling Silos and Auger Safety

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:	

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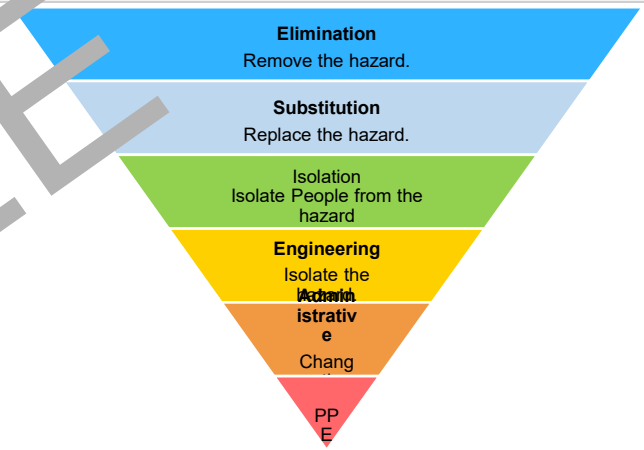
RISK MATRIX

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[illegible] before wor[illegible]
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACU[illegible]	2M MO[illegible]RATE	Ensure control measures in place.
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 H[illegible]	1L LOW	Monitor and keep records.

HIERARCHY OF CONTROLS



Risk Rating & Required Action:

4A	Stop work. The risk is intolerable. E[illegible]minate the hazar[illegible] redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or hi[illegible]er-level authorisati[illegible]is required.
3H	Review and approve additional c[illegible]rols b[illegible] task [illegible]arts. Senior supervisor sign-off needed.
2M	Ensure all nominated controls are i[illegible]ce and effe[illegible]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.*

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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, Duties and Consultation	• Lack of clear allocation of WHS duties for grain storage and handling operations under WHS Act 2011 • Inadequate officer due diligence in overseeing silo and auger safety systems • Poor consultation with workers, HSRs and contractors about grain handling and silo risks • No formal process to review incidents, near misses and regulatory changes relating to silos and augers • Failure to integrate grain handling risk management into broader organisational WHS management system	4A	• Establish a WHS governance framework that explicitly identifies PCBUs, officers and workers' duties for grain handling silos, augers, grain dryers and feed manufacturing activities in line with WHS Act 2011 • Develop a written WHS policy and safety management plan that includes grain storage and handling, with clear objectives, responsibilities and performance indicators • Implement formal consultation arrangements (WHS committees, HSRs, toolbox meetings) specifically addressing silo entry, auger safety, grain dryer operation and stock feed manufacturing hazards • Introduce an annual WHS due diligence review for officers, including documented review of incident data, regulator alerts, and compliance with relevant codes of practice and Australian Standards • Integrate grain handling and silo risks into the organisation's risk register, with periodic management review and documented action plans • Ensure procurement and contract agreements include explicit WHS obligations for contractors working on silos, augers and grain handling equipment	3H
2. Plant Design, Selection and Procurement (Silos, Augers, Dryers)	• Procurement of non-compliant silos, augers and grain dryers lacking appropriate guarding or emergency features • Plant not designed in accordance with relevant Australian Standards and WHS Regulations for confined spaces and machinery • Incompatible components (e.g. mismatched auger sizes, drives, systems or controls) increasing failure and entanglement risks • Insufficient consideration of access, egress and work platforms during design stage • Lack of design controls for dust, noise, heat and fire risks from grain dryers and handling systems	4A	• Implement a formal plant procurement procedure that requires verification of compliance with WHS legislation, relevant Australian Standards and manufacturer specifications for silos, augers and grain dryers • Specify engineered controls at design stage such as fixed guards, interlocked covers, emergency stop systems, lockable isolation points, compliant ladders and platforms, and fall protection anchors • Require third-party engineering review and certification for new or significantly modified silos and bulk handling systems, including structural integrity and load rating • Ensure grain dryers and handling systems are designed or selected with integrated dust extraction, explosion relief, noise reduction and temperature monitoring systems • Mandate provision and retention of plant design records, operating manuals, risk assessments and 'as built' drawings for all major grain handling equipment • Include lifecycle safety considerations (maintenance access, cleaning methods, decommissioning processes) in plant selection criteria	2M
3. Plant Installation, Commissioning and Modifications	• Improper installation of silos, augers or grain dryers leading to structural failure, collapse or malfunction • Uncontrolled modifications or retrofits that bypass or degrade safety features and guarding • Inadequate verification and testing of safety systems during commissioning	4A	• Establish a documented installation and commissioning procedure requiring use of competent installers and qualified engineers, with reference to manufacturer instructions and relevant Standards • Implement a Management of Change (MOC) process for any modifications to silos, augers, conveyors, grain dryers and feed manufacturing plant, including formal risk assessment and design sign-off • Require pre-commissioning safety verification checks, including functional testing of guards, interlocks, isolation points, emergency stops, sensors, alarms and fire protection interfaces	2M

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	(guards, interlocks, emergency stops, temperature controls) • Lack of engineering assessment of supporting structures, foundations and load paths for silos and transfer equipment • Poor integration of new grain handling equipment into existing electrical, control and dust management systems		• Ensure structural and civil engineering sign-off for silo pads, supports, walkways and platforms prior to loading silos to design capacity • Maintain commissioning records, test results and modification history for all critical grain handling and drying plant • Require controls integration planning (electrical, automation, dust extraction and fire systems) prior to connecting new equipment to existing installations	
4. Confined Space and Silo Entry Management	• Uncontrolled entry into silos or storage structures that meet the definition of a confined space under WHS Regulations • Engulfment in grain due to uncontrolled grain movement or bridging failure during entry or inspection • Atmospheric hazards including low oxygen, toxic gases or fumigant residues within silos • Lack of formal entry permits and rescue capability for persons entering silos or grain storage pits • Inadequate isolation of augers, conveyors and aeration systems during inspection or maintenance	4A	[redacted]	2M
5. Mechanical and Entanglement Hazards (Augers, Conveyors, Feed Systems)	• Exposure to rotating augers, belts, chains and PTO drives due to inadequate or removed guarding • Failure of management systems to prevent operation of plant with damaged or missing guards • Uncontrolled energisation or start-up of grain handling equipment during cleaning, alignment or maintenance tasks • Inadequate lockout/tagout procedures for augers and feed manufacturing machinery	4A	[redacted]	2M

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	• Poor design of grain alignment tasks and manual interventions that require close approach to moving parts		[redacted]	
6. Dust, Fire and Explosion Risk Management	• Accumulation of grain dust in dryers, augers, silos and transfer points creating explosion potential • Inadequate housekeeping and dust extraction systems in grain handling and stock feed manufacturing areas • Hot surfaces, friction, static electricity or foreign objects as ignition sources in grain dryers and conveyors • Lack of monitoring and controls for temperature, airflow and product moisture during grain dryer operation • Insufficient integration between fire protection systems and grain handling controls	4A	[redacted]	2M
7. Structural Integrity and Silo Condition Management	• Silo structural failure due to corrosion, metal fatigue, impact damage or overfilling • Failure of access ladders, platforms, safety cages and handrails from inadequate inspection and maintenance systems • Uncontrolled pressure build-up or vacuum effects from improper filling and emptying procedures • Settlement or failure of silo foundations not monitored over time • Absence of documented inspection regime for welded joints, bolts and reinforcing elements	4A	[redacted]	2M

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			[redacted]	
8. Traffic Management and Mobile Plant Interactions	• Vehicle and pedestrian interactions around silos, grain receival pits and auger locations • Uncontrolled truck, loader or tractor movements during grain loading, unloading and alignment tasks • Contact between mobile plant and overhead power lines or silo structures • Reversing vehicle incidents due to poor layout, line of sight and lack of controls • Ad-hoc placement of portable augers and grain handling equipment in trafficable areas without planning	3H	[redacted]	2M
9. Safe Systems for Grain Alignment, Handling and Movement	• Reliance on ad-hoc manual grain alignment methods that expose worker to engulfment, entanglement and musculoskeletal risks • Uncontrolled grain flow due to inadequate control of gates, slides and diverters • Insufficient design of chutes, hoppers and transfer points causing frequent blockages and manual clearing • Lack of process controls for product sequencing between silos, dryers and feed manufacturing equipment leading to overflows or cross-contamination • Poorly documented procedures for emergency stoppage and restart after blockages or equipment faults	3H	[redacted]	2M
10. Grain Dryer Operation and Thermal Hazards	• Overheating of grain and equipment leading to fires or product degradation • Inadequate procedures for start-up, shutdown and emergency stop of grain dryers	4A	[redacted]	2M

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	• Exposure of workers to high temperatures, steam or hot surfaces during normal operation or maintenance • Inadequate monitoring and control of fuel supply systems (gas, diesel, biomass) associated with grain dryers • Lack of documented maintenance and calibration regime for temperature probes, sensors and control systems		[redacted]	
11. Stock Feed Manufacturing Process Safety	• Uncontrolled interaction of multiple processing stages (grinding, mixing, pelleting, cooling) leading to overloads, jamming or fires • Inadequate segregation of hazardous plant in the feed mill from general traffic and non-essential personnel • Cross-contamination or incorrect feed formulation due to control system or procedural failures • Noise, vibration and repeated manual tasks contributing to long-term health effects • Poor management of rejected product, spills and waste leading to hazards and pest activity	3H	[redacted]	2M
12. Electrical, Control Systems and Isolation Management	• Electrical faults in motors, switchboards and control panels associated with silos, augers and grain dryers • Uncontrolled energisation of plant due to inadequate isolation points or labelling • Bypassing of control system safety functions and interlocks during fault finding or production pressure • Exposure to hazardous voltages during maintenance or unplanned breakdown responses	3H	[redacted]	2M

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	• Poor segregation of power and control cabling in dusty, corrosive grain handling environments		[redacted]	
13. Training, Competency and Supervision	• Inadequate competency of operators, maintenance staff and contractors in silo, auger and grain dryer safety • Lack of understanding of system-level risks such as engulfment, dust explosion and structural failure • Inconsistent induction and task-specific training for different sites or seasonal workers • Insufficient supervision of high-risk activities such as confined space entry, hot work and complex plant isolation • Failure to verify competency and licences for operators of mobile plant and specialised equipment	3H	[redacted]	2M
14. Emergency Preparedness, Response and Rescue	• Delayed or ineffective response to silo engulfment, fires, explosions or plant entanglement incidents • Lack of site-specific emergency plans for grain handling, storage and feed manufacturing areas • Inadequate emergency communication systems for remote or segregated work locations • Insufficient training and equipment for specialist rescue scenarios such as silo rescue or entrapment in augers • Poor coordination with external emergency services unfamiliar with site layout and grain-specific hazards	4A	[redacted]	2M
15. Health Monitoring, Ergonomics and Fatigue Management	• Prolonged exposure to grain dust, noise and vibration without adequate health monitoring systems • Manual handling of grain bags, spouts and components leading to musculoskeletal disorders	3H	[redacted]	2M

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	• Fatigue from seasonal peaks, extended shifts and night operations affecting decision making and reaction time • Inadequate systems for managing heat stress in and around grain dryers and silos • Insufficient reporting and follow-up on early signs of occupational illness or discomfort		[redacted]	
16. Documentation, Monitoring, Audit and Continuous Improvement	• Outdated or incomplete WHS documentation for grain handling silos, augers, dryers and feed manufacturing systems • Lack of performance monitoring leading to undetected control failures or drift from safe practices • Poor incident and near-miss reporting culture for plant faults, blockages and unsafe conditions • Failure to act on audit findings, inspection results or regulatory notices • Inconsistent application of procedures across multiple sites or shifts	3[illegible]	[redacted]	1L

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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

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