

Fireworks Pyrotechnics and Special Effects

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			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 for the task parts. 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. Governance, Licensing and Regulatory Compliance	<ul style="list-style-type: none"> • Operation of fireworks or pyrotechnics without appropriate state or territory licences and permits • Inadequate understanding of WHS Act 2011 and relevant explosives regulations and codes of practice • Use of unlicensed persons to handle, alter or fire pyrotechnics and fireworks • Incomplete or inaccurate notification to regulators, local council, fire services and venue management • Failure to maintain compliant records of licences, permits, training and incident reports • Using overseas or non-compliant standards in place of Australian regulatory requirements • Changes in legislation not reflected in internal policies and work procedures 	4A	<ul style="list-style-type: none"> • Establish a documented legal register covering WHS Act 2011, WHS Regulations, and each jurisdiction's explosives and fireworks legislation and Australian Standards (e.g. AS 2187 series) • Implement a governance procedure requiring verification of current pyrotechnics licences, competency cards and permits prior to any booking or event confirmation • Maintain a centralised licence and permit management system with expiry alerts and annual compliance audits • Develop a standard regulatory notification procedure for all shows, including templates, timeframes and approval pathways for regulators, fire services, police and local council • Assign a competent WHS and Compliance Officer to review all fireworks and special effects proposals against applicable legislation and codes of practice • Conduct annual management reviews of fireworks and pyrotechnics operations to confirm ongoing alignment with legal and industry best practice requirements • Implement a documented non-conformance procedure for any breach of licence or permit conditions, including immediate escalation to senior management and regulatory reporting where required 	2M
2. Fireworks and Pyrotechnic Procurement and Supply Chain	<ul style="list-style-type: none"> • Procurement of non-compliant, counterfeit or unapproved fireworks and pyrotechnic articles • Lack of traceability for product origin, batch numbers and safety data • Suppliers without robust quality assurance and explosives safety systems • Imported products not meeting Australian Standards or local authority approvals • Inadequate information provided by suppliers on safe use, storage and disposal • Failure to pre-approve alternative products when substitutions occur close to show date 	3H	<ul style="list-style-type: none"> • Develop a formal supplier pre-qualification process focusing on explosives licensing, WHS performance, product conformity and insurance coverage • Maintain an approved suppliers list for fireworks and pyrotechnics with periodic audits of safety management systems and certifications • Require certificates of conformity, batch documentation and technical data sheets for all pyrotechnic articles and special effects devices • Implement a procurement policy that prohibits purchase from unverified online or informal sources and mandates management approval for any new supplier • Specify Australian regulatory and standards compliance in all purchase orders and contracts, including right-to-audit clauses • Maintain a centralised inventory and batch tracking system to ensure traceability from delivery to use and disposal • Require suppliers to provide written safe use guidance, storage compatibility information and emergency response instructions for all products 	2M
3. Design, Planning and Risk Management for Shows and Events	<ul style="list-style-type: none"> • Inadequate high-level risk assessment for overall display or show concept 	4A	<ul style="list-style-type: none"> • Implement a formal event-level WHS risk assessment process for fireworks and special effects, consistent with WHS Regulations and Safe Work Australia guidance 	2M

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	<ul style="list-style-type: none"> Poor integration of fireworks and special effects into event design, staging and traffic flows Insufficient separation distances from audiences, structures, vegetation and critical services Failure to consider wind, topography and built environment effects on fallout and smoke Overly complex or novel effects without appropriate engineering assessment or trials Late design changes not subject to WHS risk review Lack of coordination of pyrotechnic design with other production elements (lighting, sound, drones, lasers, vehicles, aerial acts) 		<ul style="list-style-type: none"> Require a competent pyrotechnic designer to prepare site-specific firing plans, layout drawings and effect descriptions for all shows Use documented separation distance calculation based on product type, calibre, fallout and regulatory criteria, with engineering sign-off for constrained sites Establish a formal change management process requiring risk review and approval for any late modifications to effect types, locations or quantities Integrate fireworks and special effects planning into overall event safety management plans, including emergency egress routes and crowd management Conduct pre-event multi-disciplinary planning meetings involving pyrotechnicians, event organisers, venue management, security, emergency services and WHS representatives Maintain a design review checklist that includes environmental conditions, nearby infrastructure, aviation considerations, noise impacts and vulnerable groups (schools, hospitals, animals) 	
4. Venue, Site and Theatre Risk Management	<ul style="list-style-type: none"> Use of unsuitable venues for pyrotechnics or special effects (low ceilings, limited egress, combustible finishes) Inadequate assessment of structural load capacity for roof top or elevated firing points Poorly defined exclusion zones and lack of physical barriers between devices and people Incompatible use of pyrotechnics in schools, theatres or drama classrooms without system-level controls Insufficient ventilation leading to accumulation of smoke, particulates or gases indoors Obstructed or reduced emergency exits due to staging, set pieces or audience layout Lack of venue-specific fire system isolation procedures where required 	4A	<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>	2M

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5. Storage, Transport and Inventory Management of Fireworks and Pyrotechnics	<ul style="list-style-type: none"> • Improper storage of explosives and pyrotechnics contrary to regulatory requirements • Inadequate segregation of incompatible substances and general flammable materials • Uncontrolled access to storage areas by unauthorised persons or students • Vehicle transport not complying with dangerous goods and explosives transport requirements • Poor inventory control leading to missing, miscounted or aged stock • Inadequate security systems increasing risk of theft or tampering 	4A	[REDACTED]	2M
6. Equipment, Firing Systems and Engineering Controls	<ul style="list-style-type: none"> • Use of non-compliant or poorly maintained firing systems and special effects hardware • Inadequate system redundancy leading to uncontrolled fire or ignition failure responses • Unshielded wiring, exposed terminals or poor earthing causing unintended discharge • Improvised or modified equipment without engineering review • Failure of remote firing systems due to electromagnetic interference, moisture ingress or poor battery management • Inadequate guarding and physical containment of devices and mortars 	4A	[REDACTED]	2M
7. Competency, Training and Supervision	<ul style="list-style-type: none"> • Inadequate competency of personnel handling or altering fireworks and pyrotechnics 	4A	[REDACTED]	2M

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	<ul style="list-style-type: none"> • Insufficient training for teachers and drama instructors using theatrical pyrotechnics in education settings • Lack of structured induction for casual or event-based crew • Insufficient supervision ratios for higher-risk shows or school activities • Competency not maintained due to infrequent practice or limited exposure to updated standards • No clear competency criteria for assistants, stage crew and volunteers supporting shows 		[REDACTED]	
8. Contractor, Subcontractor and Third-Party Management	<ul style="list-style-type: none"> • Contracted pyrotechnics providers operating under differing standards or inadequate WHS systems • Poor coordination between multiple contractors (e.g. staging, rigging, lighting, pyrotechnics) leading to conflicting activities • Lack of clarity regarding PCBU duties and interfaces under WHS Act 2011 • Inadequate verification of contractor licences, insurances and incident history • Subcontractors engaged without principal contractor knowledge or control 		[REDACTED]	2M
9. Crowd, Public and Audience Risk Management	<ul style="list-style-type: none"> • Inadequate control of audience distances from firing areas and fallout zones • Failure to manage crowd movements and viewing positions during dynamic events • Insufficient information to the public regarding restricted areas, residual fallout risks and noise impacts • Uncoordinated interaction between fireworks, special effects and crowd 	4A	[REDACTED]	2M

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	<ul style="list-style-type: none"> activities (e.g. parades, festivals, concerts) • Failure to consider vulnerable persons including children, persons with disability and those with sensory sensitivities 		[REDACTED]	
10. Emergency Preparedness, Response and Incident Management	<ul style="list-style-type: none"> • Lack of formal emergency response procedures specific to fireworks and pyrotechnics • Inadequate coordination with fire services, ambulance and venue emergency teams • Poorly defined roles, responsibilities and authority during incidents or misfires • Insufficient first aid, firefighting and spill response equipment appropriate to the scale of the show • Failure to capture, investigate and learn from near misses and incidents 	4A	[REDACTED]	2M
11. Environmental and Community Impact Management	<ul style="list-style-type: none"> • Excessive noise impacting nearby residents, hospitals, aged care facilities and animals • Debris, fallout and contamination of land, waterways or sensitive environments • Smoke and atmospheric effects impacting air quality and triggering fire alarms • Community complaints and reputational damage due to poor consultation or notification • Residual unexploded articles in public or school grounds post-event 	3H	[REDACTED]	2M

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			[REDACTED]	
12. Health, Fatigue and Psychosocial Risk Management	<ul style="list-style-type: none"> • Long work hours, night work and irregular scheduling leading to fatigue-related errors in handling explosives • Exposure to loud noise, bright flashes and smoke leading to health impacts for workers and performers • Psychological stress from high-pressure events, public expectations and tight timeframes • Insufficient management of drugs and alcohol risks among staff, contractors or volunteers • Inadequate provisions for breaks, hydration and amenities at remote or outdoor sites 	3H	[REDACTED]	2M
13. Documentation, Communication and Consultation	<ul style="list-style-type: none"> • Critical WHS information not communicated effectively to all relevant parties • Outdated procedures, plans and drawings used for current shows • Limited consultation with workers, performers, teachers and students on WHS issues • Over-reliance on verbal instructions without written confirmation • Inconsistent handover and briefing processes between planning and execution teams 	3H	[REDACTED]	1L

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14. Continuous Improvement, Audit and Assurance	<ul style="list-style-type: none"> • Complacency and normalisation of deviance over time in high-risk operations • Lack of systematic review of WHS performance for fireworks and special effects • Ineffective internal audits that fail to identify systemic weaknesses • Failure to implement and verify corrective actions from incidents or near misses • No structured process for incorporating new technologies or industry learnings into the WHS management system 	3H	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	1L

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.